

Engineering

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C. A. A. Operating 35 Airport Traffic Control Towers

Thirty-five airport traffic control towers are now operated by the Civil Aeronautics Administration, 11 are in the process of being commissioned, and action is being taken to operate towers at 21 additional locations in the near future.

This will bring to a total of 67 the number of towers under C. A. A. control, marking rapid fulfillment of a program directed last fall by Congress at the request of the War Department.

To further increase the effectiveness of air traffic control at these key airports, the C. A. A. will maintain ultra-high-frequency radio transmitting and receiving equipment in addition to the present equipment in the intermediate frequency band. The u-h-f equipment will be installed this summer and will be operated simultaneously with the regular equipment. Ultimately, it is expected that u-h-f transmission and reception, with its greater reliability and freedom from static, will entirely replace the lower frequency radio equipment. But it is also expected that there will be a long period of transition until all planes are equipped with u-h-f.

Training Personnel

As the C. A. A. takes over more airport control towers, it is training its own personnel to operate them. Operation by C. A. A. personnel was considered the best solution of the knotty air traffic problems which arose at many airports with the growth of military flying. The municipalities and communities involved have cooperated closely in effecting the change.

Some of the advantages gained through C. A. A. control of local towers

C. P. T. Expanded to Serve Needs of Army Air Forces

The entire pilot training facilities of the Civil Aeronautics Administration will be devoted to the war program, under a plan worked out in cooperation with the Army Air Forces.

First priority in C. A. A. training will now go to students who can meet the requirements of the Army Air Corps for appointment as Aviation Cadets, and who are members of the Air Corps Section of the Enlisted Reserve.

All further flight training facilities of the C. A. A. will be limited to students who, while unable to meet the requirements for appointment as Aviation Cadets, are qualified to train for C. A. A. flying instructors' licenses. These must agree in writing to contribute their future effort to a field of aeronautics adapted to serve the national interest.

Expansion Planned

As part of the new plan, the facilities of the C. A. A. will be greatly expanded. The present capacity of 25,000 students per year in elementary pilot training will be raised to 45,000, and in the secondary course from 10,000 to 30,000.

In addition, training will be provided for ground technicians—a new activity for the C. A. A. It is planned to provide this course for about 31,000 students annually.

Applicants for training as ground technicians must be able to meet the

include the coordination of airport traffic control with the airway traffic control system, which already was under the C. A. A.'s jurisdiction, the standardization of control procedures, practices, and equipment, and the establishment

(See AIRPORT TOWERS, page 91)

requirements for entrance into the Air Corps Technical Schools, and must be members of the Air Corps Section of the Enlisted Reserve.

While undergoing the C. A. A. training, reservists will retain inactive status.

The Civilian Pilot Training Program, administered by the C. A. A., is being carried out at about 580 college centers and 135 noncollege centers. Each center consists of a college or responsible civic body which conducts the ground school and a nearby commercial flying school which gives the flight training. Both are under Government contract and supervision, and give controlled courses designed by the C. A. A. The Government pays them according to the number of students.

70,000 Learn to Fly

In 2½ years the C. A. A. program has taught 70,000 young Americans to fly. To meet the needs of the armed services, it is bringing some 4,000 of these up to instructor and commercial pilot level this fiscal year, in which 1,000 ferry pilots are also being trained. It has given refresher courses which brought more than 5,000 flyers up to standard as instructors. Most of these men are now teaching for the Army.

About 15,000 of the C. A. A. trainees have joined the Army and Navy air services, while 9,000 others are in other branches of the armed forces. In recent months the Army and Navy were getting one-third of their flying cadets from C. A. A. ranks. Army records show that only 11.8 percent of cadets with C. A. A. background fail in the Army primary stage, whereas 43.4 percent of other Army cadets are "washed out."

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C. A. A. Engineers, Test Pilots Aid Military Work

Technical facilities of the Civil Aeronautics Administration have been placed at the full disposal of the Army and Navy.

About 80 different military projects are now being handled by two divisions of the C. A. A.—the Aircraft Engineering and Flight Engineering and Factory Inspection.

Three engineers from the former division and three from the latter have been assigned for permanent duty with the Matériel Division of the Army Air Corps at Wright Field. In addition, two key officials of these divisions have been on duty at Wright Field as liaison representatives to coordinate the work of the C. A. A.'s field inspection personnel with that of the Air Corps Matériel Division.

The military services are ordering many aircraft on the basis of C. A. A. approval of design and engineering data, C. A. A. factory inspection of materials, processes, and workmanship, and C. A. A. flight testing of the finished product.

As early as the latter part of 1941 the Army Air Corps and the Navy Bureau of Aeronautics had been interested in the procurement of aircraft already certificated by the C. A. A. or in the process of certification. These aircraft were mostly training, transport, and observation types. As interest developed in the military use of gliders, the Air Corps set up a training and procurement program, and bought gliders on the basis of type certificates issued by the C. A. A.

Program Grows

With continued expansion of the aircraft production program in 1941, the Army and Navy made more and more use of the C. A. A.'s technical facilities. In addition, a great number of aircraft were purchased by foreign governments on the basis of type and production certificates issued by the C. A. A. In the latter part of 1941 a survey showed that a large percentage of the work performed by C. A. A. engineering and inspection field personnel was in connection with aircraft being procured by the Army, Navy, or for military and training purposes by foreign governments.

Immediately following the declaration of war by this country, a series of conferences were held between officials of the Flight Engineering and Factory Inspection and Aircraft Engineering Divisions and officers of the Army Air Corps' Matériel Division at Wright Field. Facilities of the two C. A. A. divisions concerned were offered to assist in the enormously expanded Army procurement program. This offer was accepted and a program was developed and put into effect whereby these two divisions will handle all flight testing.

(See **MILITARY AID**, page 91)



Safety in the air these days has an added meaning. It is the Army's job to spot and intercept any hostile aircraft. At the same time every effort is made to permit civilian air activities to continue as much as is consistent with national safety. This means that an up-to-the-minute record must be kept of all planes in flight, so that any plane at any time can be identified quickly and surely.

The Civil Aeronautics Administration, through its airway traffic control centers and network of interphone communications, gives valuable aid to the Army in performing this task. It furnishes one air traffic controller and three assistant controllers for each of the Army information centers to provide continuous duty as liaison officers.

The main function of a C. A. A. liaison officer is to identify those aircraft plotted on the operations board concerning which information is available in an airway traffic control center. When a plane is reported to the Army information center by its aircraft spotters and radio devices, and the Army is unable to identify it as a military craft, the C. A. A. man is asked to contact the nearest C. A. A. airway traffic control center. If the control center identifies the plane from its flight progress chart, well and good. If not, the Army sends a military plane to intercept the unidentified aircraft.

To facilitate this exchange of information, a map table is provided at each airway control center displaying sectional aeronautical charts covering the airway traffic control area, gridded to conform to the grids on the operations boards in Army information centers concerned. The C. A. A. liaison officer in each information center is connected by interphone to the plotting position in the airway traffic control center or centers controlling traffic in the air defense area of the information center.

Thus, the C. A. A.'s entire airway traffic control system is at the service of the Army Air Corps in this vital undertaking. In addition to aiding in the identification of planes, the C. A. A.'s vast network is also ready for use in the spreading of an alert or air-raid warning. Necessary instructions may quickly be transmitted over the interphone network for blacking out all airway facilities, radio, and aeronautical lights, and arranging the rapid dispersal of commercial and civilian planes in a combat zone.

106,800 Courses Given in C. P. T.

A total of 106,800 courses have been given in the Civil Aeronautics Administration pilot training program since 1939, at an average cost per course of \$544, according to Charles I. Stanton, Acting Administrator.

This sum considers all expenses, including administration, of the several types of courses which have been given, producing flyers rated from private pilots to commercial pilots qualified as flight instructors and even pilots qualified for trans-ocean ferrying in a post-graduate course.

To produce a pilot worthy of a private license, the C. A. A. pays out \$365. To produce a ferry pilot, the outlay is about \$5,014.

Much of the C. A. A. money has been "invested" in training instructors, taking boys who had never flown before and giving them elementary, secondary, cross country, and instructor courses, to meet the need of military and civil aviation for instructors. These trainees have immediately returned "dividends" on the government's investment in them by turning out other pilots. To make an instructor in this manner, the C. A. A. spent about \$2,976.

Several thousand of the 106,800 courses given were refresher courses, designed to make instructors of pilots who had had previous experience. For this course the C. A. A. paid \$250.

All the courses were purchased by the C. A. A. under contracts with private firms and individuals who did the flying instruction, and colleges and noncollege centers giving ground instruction. The C. A. A. merely supervised, set standards, and regulated.

The total of \$66,000,000 appropriated by Congress for training civilian pilots includes the cost of administration.



Drop in Accident Rate for 1st Half of 1941 Reported

The non-air-carrier accident report for the first half of 1941, issued recently by the Civil Aeronautics Board, shows a marked reduction in the accident rate as compared with the corresponding period of 1940. A total of 1907 non-air-carrier accidents occurred between January 1 and July 1941, according to the report. Although this represents, numerically, 557 more accidents than the 1,350 in the first half of 1940, the accident rate is comparably lower when the greater increase in flying during this period is considered.

The report makes a comparison between 1941 and the corresponding 1940 period by noting the ratio of accidents to the average number of certificated pilots and student pilots for each period. In order to make this a more readable figure, the ratio is multiplied by 100.

Kind of Flying

Two of the eight tables in the report are given below. Table I shows the injury by kind of flying for the first 6 months of 1940 and 1941. It is particularly interesting to note that the accident ratio for fatal accidents in 1941 is about one-half that for 1940, and that the accident ratio for serious injury accidents is about one-fourth that of 1940.

Table II shows a comparison of the accident ratio among holders of stu-

dent, private, and commercial certificates. In this case, the accident ratio is not based, for obvious reasons, on the total average number of certificated pilots and student pilots. Instead, the accident ratios for student pilots are based on the average number of student certificates for the two periods under consideration and for private pilots on the average number of pilot certificates, etc.

Here again, the most obvious fact is the marked reduction of the accident ratio in all categories. It is interesting to note that the accident ratios are lowest among student pilots, probably due to the influence of the Civilian Pilot Training Program, and that the commercial pilots show the highest accident rates. It should be pointed out, however, that the commercial pilots have greater exposure to risk because they fly more than those in the other

(See ACCIDENT REPORT, page 99)

Designation of Medical Examiners

During the month of February 1942, the following named physicians were officially authorized to make physical examinations for the Administration:

ARIZONA—Dr. Frederick W. Knight, 618 Central Avenue, Safford.

DISTRICT OF COLUMBIA—Dr. Carmon Robert Naples Parkwood Medical Building, 1748 K Street NW, Washington, D. C.

MISSOURI—Dr. Glenn J. Tygett, 215 North Spragg Street, Cape Girardeau; Dr. William H. Breuer, Breuer Building, St. James.

OKLAHOMA—Dr. George E. Johnson, 306 Masonic Temple, Ardmore; Dr. Morris Smith, Medical-Dental Building, Guymon.

RHODE ISLAND—Dr. Lewis Abramson, 280 Broadway, Newport.

TEXAS—Dr. Thomas R. Burnett, Saxet Building, Mission.

ALASKA—Dr. H. O. K. Bauer, U. S. Indian Service Hospital, Kotzebue.

Address Changed

The following named medical examiner has changed his address during the month, his new address being as follows:

Dr. Raymond Sanderson, 301 Rogers Building, 218 West Church Street, Jacksonville, Fla.

Examinations Discontinued

The following physicians are no longer making examinations for the Administration:

Dr. Avery P. Rowlette, Cape Girardeau, Mo.

Dr. Emil A. Stricker, Rolla, Mo.

Dr. Robert C. Sullivan, Ardmore, Okla.

Dr. Lyle A. Condell, Safford, Ariz.

Dr. Bernard L. Jarman, Washington, D. C.

Dr. Maurice T. Horsman, Salem, Ill.

Dr. Philip S. Geller, 280 Broadway, New-

port, R. I.

Dr. Pat Riley, Mission, Tex.

Dr. Paul F. Miner, Laramie, Wyo.



Rules for Emergency Use of Army Bases By Airlines Issued

Following is an excerpt from the Army's RULES AND REGULATIONS, giving a new section pertaining to the use of Army bases and fields by commercial airlines in emergencies.

TITLE 10—ARMY: WAR DEPARTMENT

CHAPTER II—AIRCRAFT

Part 22—Assistance to Civil Aircraft¹

§ 22.8 Use of Army Air Forces bases by commercial airlines.—Bases and fields of the Army Air Forces may be used as alternate airports by commercial airlines when weather or other emergency conditions prevail, making scheduled airline terminal airports unsafe; or when required under the military situation; subject to the following conditions:

(a) Authority must be obtained from the commanding officer of the base or field, and a complete flight plan filed with him prior to the time of departure of the aircraft involved.

(b) The commanding officer must be notified immediately upon the decision to use his base or field and advised of the estimated time of arrival of the aircraft thereto.

(c) The pilot of the aircraft involved must be made familiar, prior to take-off for the scheduled airport, with the communications and radio aids facilities, the air and ground traffic regulations, and the general rules and regulations currently in effect at the alternate airport.

(d) The commanding officer of the alternate airport must be notified immediately in the event the aircraft is landed at the scheduled terminal airport instead of the alternate as planned.

(e) No services or supplies will be furnished, except in emergencies. (See §§ 22.4 to 22.7, inclusive.)

(f) The United States Government will assume no liability or responsibility arising by reason of the condition of the landing area, radio aids, or adjacent establishment; or by the acts of its agents in connection with the control of flight or flights involved; or in connection with the granting of the right to use such Army Air Forces base or field as an alternate airport. (44 Stat. 570; 49 U. S. C. 175) [AAF Regs. 85-4, January 29, 1942]

¹ § 22.8 is added.

176% Gain Shown In Airlines Safety

Safety records made by domestic airlines in the three years since the inauguration of the Civil Aeronautics Act disclose a 176 percent improvement over any 3 years previous, according to the Civil Aeronautics Board. Even the poorest of the last 3 years had a fatality rate 33 percent lower than that of the best year preceding this period, the Board said.

Figures based on fatalities per 100,000 passenger-miles flown by airlines of the United States are given as 1.2 in 1939, 3.1 in 1940, and 2.3 in 1941.

The record on the American Flag Lines in international service has also been exceptionally good. The figure for 1941 is approximately 1.6 passenger fatalities per 100,000,000 passenger miles, making the average for the last 3 years in those operations 3.0 as against 4.5 in the best previous 3-year period.

Airline Charter Trips Ruled Out by Board

The Civil Aeronautics Board has announced the adoption of a regulation which prohibits commercial airlines from operating charter trips or performing special services other than their regular scheduled trips. If such charter trips or special services become a necessity, approval must be obtained from the Military Director of Civil Aviation.

The regulation, an emergency measure resulting from the present shortage of commercial aircraft, will keep unnecessary air travel in the background, clearing the way for transportation of military personnel and supplies and all other services so urgently needed in the war effort.

Order Issued to UAL

In an order issued by the Civil Aeronautics Board, United Air Lines Transport Corporation was directed to show cause why the Board should not make final its findings and conclusions in regard to the carrier's mail rates. The "show cause" order, under a shortened mail rate procedure adopted by the Board on January 8, 1942, is "in the public interest, and is necessary to carry out the provisions of the Civil Aeronautics Act of 1938," the Board said.

Decision Paves Way For \$4,000,000 Mail Pay Recovery

As a result of the decision issued by the Civil Aeronautics Board fixing new mail rates for American Airlines, Inc., the Government stands to recover approximately \$4,000,000. This amount represents the excess of mail pay received by the carrier from the Post Office Department during the pendency of the rate proceeding decided. A further result of the Board's decision is to entitle American Airlines to recover a substantial sum from the Government for taxes paid on the amount now held by the Board to be excessive.

The fair and reasonable mail pay rate for this period was fixed by the Board at 16.5 cents per airplane mile. The future rate, effective April 1, 1942, was fixed at 12 cents per airplane mile on schedules designated by the Postmaster General for the carriage of mail, as long as such schedules do not exceed 35,000 miles per day. The rate would be proportionately lowered for increases of mail schedules beyond that level. In its opinion, the Board stated that the 16.5-cent rate which it fixed for the past period would amount to approximately 13.1 percent of the company's investment, or a net profit, after Federal income taxes, of 9.5 percent. This rate would represent 8 percent of the nonmail revenues of the carrier before Federal taxes and 5.5 percent of the nonmail revenues after Federal taxes.

According to the opinion of the Board, the future mail pay rate of 12 cents per airplane mile would result in an estimated net return on the carrier's investment of 9.86 percent, after Federal taxes.

The 12-cent pay rate applies to all of American Airlines' routes.

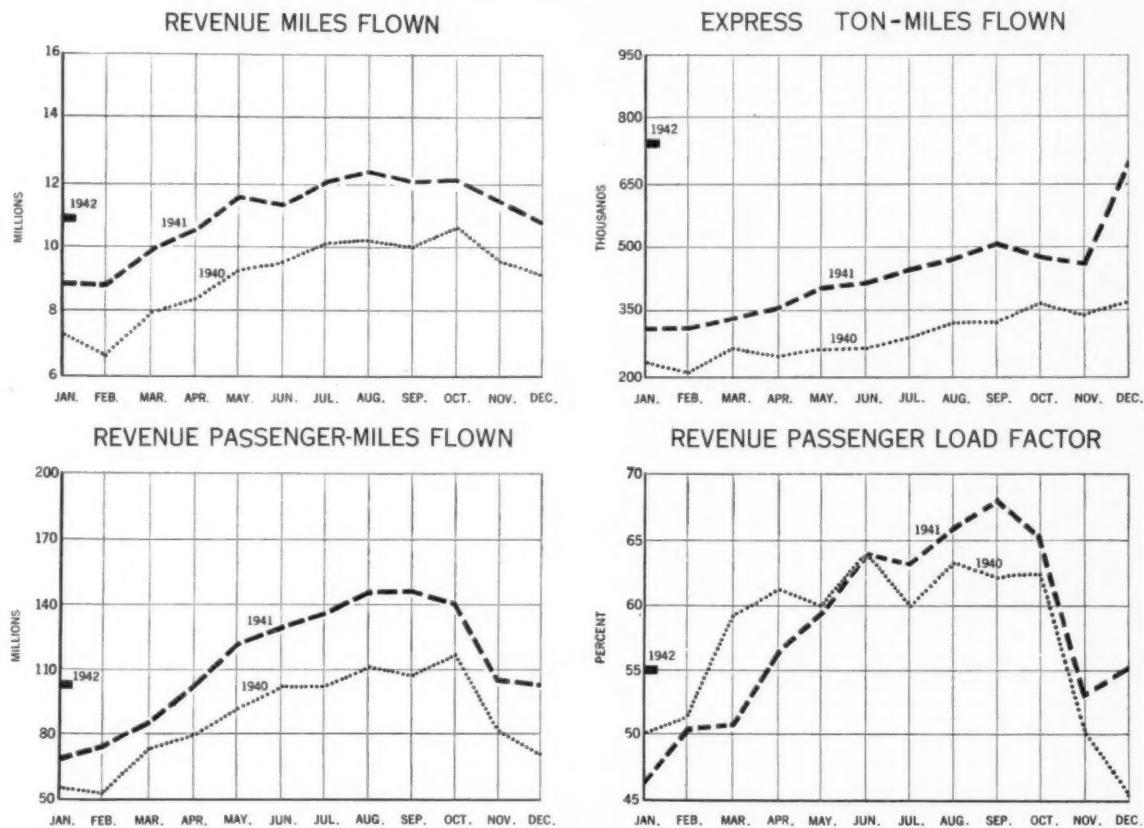
Cannot Order Refund

The Board cannot order a refund of excess payments made to an air carrier. It can only determine the fair and reasonable rates payable by the Post Office Department for the past period. Rates actually paid to American were those set by the Interstate Commerce Commission before the passage of the Civil Aeronautics Act.

The Board has in several cases, where carriers operating under rates fixed by the Interstate Commerce Commission have sustained losses during the pendency of rate proceedings before the Board, set higher rates which resulted in additional payments to the carriers involved. The American case, however, is the first in which the Board has found that a carrier has, during the pendency of the rate proceeding, received rates in excess of those which would have been fair and reasonable.

—Keep 'Em Flying—

Domestic Air Carrier Traffic Statistics for 1940, 1941, and the First Month of 1942



Domestic Air Carrier Traffic Statistics for January 1942

Operator	Revenue miles flown		Revenue passengers carried		Revenue passenger-miles flown		Express pound-miles flown		Revenue passenger load factor (percent)	
	January 1942	Percent change over 1941	January 1942	Percent change over 1941	January 1942	Percent change over 1941	January 1942	Percent change over 1941	January 1942	January 1941
All American Aviation, Inc.	66,189	0			0		250,390			
American Airlines, Inc.	2,607,335	23.39	87,707	51.77	31,514,433	4.02	338,659,279	68.10	63.95	58.33
Braniit Airways, Inc.	517,279	26.18	13,147	47.75	4,005,278	50.67	32,741,547	150.42	46.32	38.11
Catalina Air Transport	6,884	23.81	1,627	84.68	48,810	84.68	392,490	29.60	64.87	45.41
Chicago & Southern Air Lines, Inc.	209,375	47.51	4,997	78.02	1,816,993	69.52	14,025,868	94.27	41.49	35.87
Continental Air Lines, Inc.	169,523	61.53	2,320	112.07	588,987	68.96	1,664,985	135.18	34.60	31.10
Delta Air Corporation	264,214	34.20	8,442	116.13	2,355,998	114.01	6,521,369	158.44	53.88	41.81
Eastern Air Lines, Inc.	1,576,029	21.41	48,652	49.06	20,411,070	30.88	140,116,806	66.9	55.27	51.88
Inland Air Lines, Inc.	129,572	39.62	1,688	-20.55	1,175,798	-23.61	398,631	19.25	15.70	25.07
Mid-Continent Airlines, Inc.	197,686	26.88	2,654	72.23	682,139	73.57	1,399,769	48.60	30.52	21.48
National Airlines, Inc.	138,607	-5.54	3,743	29.61	1,013,207	37.83	2,653,138	24.25	55.44	44.32
Northeast Airlines, Inc.	100,374	4.81	3,030	51.42	525,463	61.08	969,939	134.24	25.29	34.06
Northwest Airlines, Inc.	472,131	5.48	7,723	24.79	3,212,362	28.49	52,846,822	87.77	42.15	27.77
Pennsylvania-Central Airlines Corporation	523,732	60.75	25,097	103.05	4,963,888	124.58	47,205,348	255.37	47.24	34.79
Transcontinental & Western Air, Inc.	1,570,886	32.79	30,886	88.09	14,285,308	69.82	282,681,904	296.21	51.52	45.63
United Air Lines Transport Corporation	2,034,010	20.22	33,881	49.24	17,421,805	66.28	539,351,841	199.57	60.57	43.82
Western Air Lines, Inc.	242,950	7.67	5,013	49.91	1,522,112	55.20	33,387,835	90.91	40.33	29.91
Total.	11,126,776	25.17	279,607	57.92	104,573,649	51.45	1,495,287,961	138.40	54.72	46.51

¹ Carried passengers from January 6 to 31 inclusive.

Airport Management Forum

Standard Accounting Procedure Suggested for Use on Airports

In response to many requests for information on airport accounting problems, the Journal presents here a suggested standard accounting procedure for use in connection with municipal and other non-Federally owned airports throughout the United States.

The following five schedules were drawn up by W. Russell Graham, Jr., of the Civil Aeronautics Administration. They were designed to be broad enough and versatile enough to be easily adapted to the wide variety of situations which any standardized accounting procedure on airports would be required to meet.

Mr. Graham further explains that the five schedules have been designed so that they may be used by either the owner of an airport, or the operator, or both, or by one party who is both owner and operator. No attempt has been made at this time to design books or accounting records for use as a bookkeeping system by individual airports. For one thing, books and records for a system such as this are a very simple matter. They would consist of three simple journals, which, if desired, can be kept in one binder. These are:

1. Journal of revenue and cash receipts.

2. Journal of expense and cash disbursements.

3. A small general journal.

There would also be a very small general ledger of the usual type, with whatever subsidiary ledgers (such as accounts receivable, notes receivable, etc.) as might be needed in individual cases, depending on the size of the airport and its operation. The above records, both journals and ledgers, can be very easily set up on standard forms in common use, such as may be purchased at any stationery and office supply store.

Following are the schedules comprising the suggested standardized procedure:

Schedule "A"—Capital Investment

1. Land—Purchase Price; or Estimated Value of Land Donated.....	
2. Landing Field—Cost of Improvements, such as grading, drainage, runways, taxiways and aprons.....	
3. Terminal or Administration Building.....	
4. Hangars.....	
5. Other Buildings.....	
6. Lighting Systems.....	
7. Radio Systems.....	
8. Equipment:	
(a) Crash, Fire, and Safety Equipment.....	
(b) Field Maintenance Equipment.....	
(c) Shop Equipment.....	
(d) Office Equipment.....	
9. Other Capital Assets (Describe).....	
10. Parks, and Parking Areas.....	

TOTAL CAPITAL INVESTMENT

Schedule "B"—Source of Invested Capital

1. All Capital Financial Obligations, such as Bond Issues, Notes, Debentures, Stock and other Securities: (Describe below.)	
Total Original Amount.....	Amount Previously Retired.....
Balance Outstanding.....	
2. Any Capital Investment from Municipal Cash Accounts, Tax Funds, etc., which was used to pay the original cost of construction or improvements.....	
3. Governmental Financial Capital Aid:	
Federal Government.....	
State Government.....	
County Government.....	
City Government.....	
Other Governmental Body.....	
4. Private Gifts or Donations.....	
5. Revenue used for Capital Improvements.....	
6. Other.....	
TOTAL INVESTED CAPITAL	

Describe Bond Issues, or other Securities listed under Item 1, above:

Rate of Retirement for Balance Outstanding.

Schedule "C"—Cumulative Capital Operation

	Debit	Credit
1. Securities Retired.....		
2. Additional Cash Capital advanced from General Municipal Funds, Tax Funds, or Other Sources, which was used to retire securities or for other similar purpose.....		
3. Current Cash Balance in Security Retirement Fund, or "Slush Fund," if any such fund has been created specifically for this project.....		
4. Current Cash Balance in Cash Operating Account, if any such account has been created specifically for this project.....		
5. Cash advanced from General Municipal Funds, or other sources, for operating purposes.....		
6. Reserves for Depreciation:		
Buildings.....		
Improvements.....		
Equipment.....		
7. Revenue Distributed to Capital Improvements. (Same as Schedule "B," Item 5).....		
8. Revenue realized in previous years and distributed to purposes other than Capital Improvements or Operating Expenses of Airport. (Total Cumulative Net Revenue taken from project and distributed to Owner and/or Operator).....		
9. Current Outstanding Assets and Liabilities: Assets such as Accounts and Notes Receivable, Prepaid Interest, Insurance and Taxes; Liabilities of a corresponding nature. (Show details on separate schedule).....		
10. Total Net Cumulative Operating Gain or Loss.....		
TOTALS		

Schedule "D"—Income

1. Landing Fees.....	Gross.....
2. Fees from Landing Light Service.....	do.....
3. Rents from Hangars and Storage.....	do.....
4. Rents from Terminal Building, do.....	and Other Space.....
5. Sale of Aviation Gas and Oil.....	Net.....
6. Sale of Aircraft and Parts.....	do.....
7. Aviation Training Schools.....	do.....
8. Local Passenger Flights.....	do.....
9. Charter Service.....	do.....
10. Concessions of Non-Aviation Nature (Detail on separate schedule).....	do.....
11. Other Income (Detail).....	do.....
TOTAL INCOME	

Schedule "E"—Operating Expense

Salaries:	
Administrative.....	
Operative.....	
Maintenance (Memorandum, only).....	
TOTAL SALARIES (EXCEPT MAINTENANCE)	
Rent.....	
Power, Light, Heat and Water (Net).....	
Maintenance of Landing Field: (Including Field, Runways, Taxiways and Apron).....	
Maintenance of Hangars.....	
Maintenance of Administration Building and Other Buildings.....	
Maintenance of Field Lighting.....	
Maintenance of Radio Facilities.....	
TOTAL MAINTENANCE	
Depreciation Expense:	
Buildings.....	
Improvements.....	
Equipment.....	
Miscellaneous Office and Administrative Expense:	
Taxes.....	
Insurance.....	
Interest.....	
Other Expense.....	
TOTAL OPERATING EXPENSE	

Two Parts Explained

By way of further explanation, Mr. Graham points out that the statement of assets and liabilities has been segregated into two parts:

Part 1 consists of Schedules A and B. Schedule A reflects all capital assets or the total capital investment in the airport. Schedule B reflects all capital liabilities, or the source of funds from which the capital investment was made. The totals of these two schedules are always exactly equal, and give an immediate picture of the total capital value of the airport, with which any operating profit or loss can always be compared on a percentage basis.

Part 2 consists of Schedule C, which segregates into a separate statement all assets and liabilities which are constantly affected by operation of the airport and financial transactions, so that the net profit or loss is discernible at a glance, either the cumulative total or that portion applicable to any specific period, and may be easily analyzed.

Airport Towers

(Continued from page 85)

ment of uniformly high personnel performance as a result of national recruiting and training programs.

The importance of complete coordination between airport and airway traffic control is reflected in the tremendous increase in aircraft operations handled by the C. A. A.'s airway traffic control centers. For instance, more aircraft operations were handled by these centers in the single month of January 1942 than during the entire fiscal year ending June 30, 1940. The number of operations for January 1942 was 659,180, as against approximately 400,000 for the year ending June 30, 1940. Viewed in another light, the total operations in January of this year represent a 600 percent increase over the total, 106,437, in January 1941.

Jump in Clearances

Traffic clearances issued by the C. A. A.'s 18 airway traffic control centers operating in January of this year totalled 171,445, as against 68,472 in January 1941. The high efficiency of operation is indicated by the percentage of clearances delivered, which was 99.4 percent in January 1941 and 99.5 percent in January of this year.

Of the 659,180 aircraft operations handled in January 1942, 116,132 involved air carrier aircraft, 404,969 involved Army aircraft, 62,591 Navy aircraft, 387 Coast Guard aircraft, and 75,101 itinerant or private aircraft.

On March 1 the last of 23 Airway Traffic Control centers was commissioned. This provides airway traffic control service for practically all the civil airway system. The remaining portion will be included in control areas of the established centers in the near future.

Another significant development of air travel is the increasing resort to instrument approaches. A survey by the Air Traffic Control Division of the C. A. A. shows that for the period of July through December 1941 a total of 8,929 instrument approaches were made at the 103 airports in the country under the jurisdiction of the C. A. A. Airway Traffic Control service. Of these, 8,541 were made by air carrier aircraft, 212 by Army aircraft, 25 Navy, 2 Coast Guard, and 149 itinerant or private aircraft. The average time for an approach was 9 minutes for air carrier and itinerant aircraft, and 10 minutes for Army, Navy, and Coast Guard aircraft.

Total delayed time to landing aircraft due to air traffic congestion was as follows: Air carrier aircraft, 496 hours 30 minutes; Army aircraft, 6 hours 53 minutes; Navy aircraft, 1 hour 17 minutes; Coast Guard aircraft, 27 minutes; and itinerant aircraft, 6 hours 56 minutes.

Towers Being Commissioned

Airport traffic control towers now being commissioned by the C. A. A. are



at: Little Rock, Ark.; Anchorage, Alaska; Fairbanks, Alaska; El Paso, Tex.; New Orleans, La.; Kansas City, Kans. (Fairfax); Tulsa, Okla.; Augusta, Ga.; Tallahassee, Fla.; Tucson, Ariz.; San Diego, Calif.

Airport traffic control towers now operated by the C. A. A. are at: Boston, Mass.; Buffalo, N. Y.; Hartford, Conn.; Newark, N. J.; Providence, R. I.; Atlanta, Ga.; Birmingham, Ala.; Charlotte, N. C.; Charleston, S. C.; Jackson, Miss.; Jacksonville, Fla.; Nashville, Tenn.; Orlando, Fla.; Savannah, Ga.; Tampa, Fla.; Columbus, Ohio; Indianapolis, Ind.; Louisville, Ky.; Albuquerque, N. Mex.; Denver, Colo.; Kansas City, Mo.; Wichita, Kans.; Las Vegas, Nev.; Los Angeles, Calif. (Mines Field); Long Beach, Calif.; Oakland, Calif.; Salt Lake City, Utah; Boise, Idaho; Pendleton, Oreg.; Portland, Oreg.; Seattle, Wash. (Boeing Field); Spokane, Wash.; Memphis, Tenn.; Miami, Fla.; St. Louis, Mo.

Designation of Civil Airways Amended

The Designation of Civil Airways which became effective March 1, 1942, has been amended by order of the Administrator of Civil Aeronautics. Full text of the amendment follows:

Amendment No. 1 of the Designation of Civil Airways—Redesignation of Green Civil Airway No. 5 and Amber Civil Airway No. 7; Designation of Red Civil Airway No. 37.

1. By striking the following words appearing in section 600.10004:

"the intersection of the center lines of the on course signals of the northeast leg of the Texarkana, Ark., radio range and the southwest leg of the Little Rock, Ark., radio range; Little Rock, Ark., radio range station; Brinkley, Ark., radio range station";

2. By striking the words "Caribou, Maine, radio range, to the Caribou, Maine, radio range station," appearing at the end of section 600.10106 and inserting in lieu thereof the following:

"Presque Isle, Maine, radio range; Presque Isle, Maine, radio range station; to the Municipal Airport, Caribou, Maine."

3. By adding a new section, section 600.10236 to read as follows:

"^{600.10236 Red civil airway No. 37 (Texarkana, Ark., to Memphis, Tenn.)} From the intersection of the center lines of the on course signals of the northeast leg of the Texarkana, Ark., radio range and the southwest leg of the Little Rock, Ark., radio range, via the Little Rock, Ark., radio range station; the intersection of the center lines of the on course signals of the east leg of the Little Rock, Ark., radio range and the west leg of the Brinkley, Ark., radio range station; and to the intersection of the center lines of the on course signals of the east leg of the Brinkley, Ark., radio range and the southwest leg of the Memphis, Tenn., radio range."

This amendment shall become effective 0001 C. S. T., March 15, 1942.

Airport Projects Approved

In accordance with the provisions of section 303 of the Civil Aeronautics Act, the Administrator of Civil Aeronautics has issued certificates of air navigation facility necessity, authorizing the expenditure of Federal funds in the operation of the following projects:

ARKANSAS	
Little Rock, Municipal Airport— Adams Field (WPA)	\$133,948
CONNECTICUT	
Danbury, Municipal Airport (WPA)	524,132
IDAHO	
Payette, Municipal Airport (WPA)	24,177
KANSAS	
Topeka, Municipal Airport—Phillip Billard Field (WPA)	34,326
MASSACHUSETTS	
Beverly, Beverly Airport (WPA)	110,906
MICHIGAN	
Pellston, Emmet County Airport (WPA)	49,159
MINNESOTA	
Appleton, Municipal Airport (WPA)	4,623
Madison, Madison Intermediate Field (WPA)	3,993
MISSOURI	
Dillard, U. S. Forest Service, Emer- gency Landing Field	200
MONTANA	
Butte, Municipal Airport (WPA)	142,595
NEW YORK	
New York, LaGuardia Field (WPA)	116,750
NORTH CAROLINA	
Friendship, Greensboro-High Point Airport (CAA-WPA)	204,827
OKLAHOMA	
Ada, Municipal Airport (WPA)	5,998
OREGON	
Salem, Municipal Airport (WPA)	41,997
WASHINGTON	
Ephrata, CAA Intermediate Field (CAA-WPA)	87,828
Hoquiam, Moon Island Airport (WPA)	32,532
WEST VIRGINIA	
Bridgeport, Harrison County Air- port (WPA)	220,096
WISCONSIN	
Janesville, Rock County Airport (WPA)	91,947

Military Aid

(Continued from page 86)

factory inspection, and analysis of technical data for as large a number of projects as their staffs will permit. Similar arrangements were made with the Navy Bureau of Aeronautics.

This undertaking will serve the dual purpose of providing our military services with the expert assistance of these well knit C. A. A. organizations for the duration of the war while at the same time keeping them together and functioning in the type of duties that must be resumed in connection with the great expansion of commercial aviation activities universally anticipated after the end of the war.

DESIGNATED LANDING AREAS AS OF MARCH 5, 1942

(All airports, seaplane bases or anchorages not listed below or not designated since March 5, 1942, are closed in accordance with C. A. R. 60.95 and are open only to air carrier or Government aircraft.)

ALABAMA

Auburn—Auburn Airport.
Birmingham—Birmingham Airport.
Birmingham—Central Park Airport.
Clanton—Cragg Field.
Decatur—Decatur Flying Service Airport.
Dothan—Dothan Airport.
Gadsden—Gadsden Airport.
Jasper—Jasper Airport.
Mobile—Bates Field.
Muscle Shoals—Muscle Shoals Airport.
Tuscaloosa—Foster Field.
Tuskegee—Tuskegee Airports 1 and 2.

ARIZONA

Douglas—Douglas International Airport.
Kingman—Port Kingman Airport.
Nogales—Nogales International Airport.
Parker—Parker Airport.
Phoenix—North Phoenix Airport.
Phoenix—Sky Harbor Airport.
Quartzsite—Conner Field.
Tucson—Gilpin Airport.
Tucson—Tucson Municipal Airport.
Wellton—Smiley Field.
Wellton—Wellton Airport.

ARKANSAS

Arkadelphia—Site 24, Dallas-Louisville Airway.
Fayetteville—Fayetteville Airport.
Fort Smith—Fort Smith Airport.
Hot Springs—Chamber of Commerce Airport.
Little Rock—Adams Field.

CALIFORNIA¹

Blythe—Harvey Field.
Blythe—Plosser Airport.
Blythe—Site 21, Los Angeles-Phoenix Airway.
Brawley—Brawley Airport.
Burbank—Lockheed Air Terminal.
Compton—Compton Airport.
Downey—Vultee Airport.
Fresno—Fresno-Chandler Airport.
Gardena—Gardena Valley Airport.
Glendale—Grand Central Air Terminal.
Inglewood—Los Angeles Municipal Airport.
Lancaster—Wareagle Field.
Long Beach—Long Beach Airport.
Los Angeles (Culver City)—Culver City Airport.
Los Angeles—Metropolitan Airport.
Monterey—Monterey Airport.
Oxnard—Miraloma Airport.
Quincy—Quincy Airport.
Quincy—Sky Harbor Airport.
San Diego—Lindbergh Field.
San Diego—Peikka Airport.
Santa Ana—Santa Ana Airport.
Santa Monica—Clover Field.
San Mateo—San Mateo Airport.
Silver Lake—Site 18, Los Angeles-Salt Lake Airway.

COLORADO

Boulder—Boulder Airport.
Denver—Combs Field.
Denver—Denver Airport.
Fort Collins—Colorado State College.

CONNECTICUT

Danbury—Danbury Airport.
Hartford—Brainard Field.
Hartford—Rentschler Field.
Meriden—Meriden Airport.
New Haven—New Haven Airport.
Plymouth—Waterbury Airport.
Simsbury—Simsbury Airport.
Stonington—Foster Airport.
Wallingford—Lufbery Field.
Westport—Sea Wings, Inc., Seaplane Base.

¹ (Although certain fields have been designated in California, all fields within the 150-mile active air defense zone in California are closed to all civilian flying except air carrier.)

DELAWARE

Dover—Dover Airport.
New Castle—Bellanca Field.
Newark—Newark Airport.
Rehoboth Beach—Rehoboth Airport.
Seaford—DuPont Airport.
Stanton—Harold Swift Airport.
Wilmington—DuPont Airport.
Wilmington—Point Breeze Airport.

DISTRICT OF COLUMBIA

Washington—Washington National Airport.

FLORIDA

De Land—De Land Airport.
Ft. Lauderdale—Ft. Lauderdale Airport.
Ft. Pierce—Ft. Pierce Airport.
Homestead—Homestead Airport.
Lakeland—Lakeland Airport.
Miami—Chalks Seaplane Base.
Miami—Embry-Riddle Seaplane Base.
Miami—Miami Municipal Airport.
Miami—(Hialeah) Seminole Airport.
Miami—Sunny South Airport.
Miami Springs—Shady Rest Airport.
Orlando—Cannon Mills Airport.
Orlando—Hoquist Airport.
Pensacola—Pensacola Airport.
St. Petersburg—Albert Whitted Airport.
Sarasota—Sarasota Airport.
Tallahassee—Dale Mabry Field.
Tampa—Peter O. Knight Airport.
West Palm Beach—Belvedere Airport.
West Palm Beach—Morrison Field.

GEORGIA

Athens—Athens Airport.
Atlanta—Atlanta Airport.
Augusta—Daniel Field.
Brunswick—Malcolm McKinnon Field.
Cartersville—Felton Field.
Cedartown—Cedartown Airport.
Columbus—Columbus Airport.
Griffin—Griffin Airport.
Macon—Herbert Smart Airport.
North Augusta—Our Own Airport.
Rome—Rome Airport.
Tifton—Tifton Airport.
Toccoa—Le Tourneau Airport.
Waycross—Ware County Airport.

IDAHO

Boise—Boise Air Terminal.
Boise—Floating Feather Airport.
Burley—Burley Airport.
Caldwell—Caldwell Airport.
Idaho Falls—Idaho Falls Airport.
Lewiston—Lewiston Airport.
Nampa—Richie Field.
Pocatello—Pocatello Airport (McDougall Field).
Twin Falls—Twin Falls Airport.

ILLINOIS

Alton—Wadlow Field.
Aurora—Fox Valley Flying Service Airport.
Bloomington—Bloomington Airport.
Cairo—N. Cairo Airport.
Chicago (Des Plaines)—Ravenswood Airport.
Chicago (Des Plaines)—Skyway Airport.
Chicago (Des Plaines)—Aviation Country Club.
Chicago (Northbrook)—Sky Harbor Airport.
Dalton—Moody Airport.
Decatur—Decatur Airport.
Dixon—Dixon Airport.
E. St. Louis—Lakeside Airport.
E. St. Louis—Parks Air College Airport.
East Moline—Sportsman Aircraft.
Elmhurst—Chicago-Elmhurst Airport.
Franklin Park—Sky Haven Airport.
Freeport—Hillcrest Airport.
Galesburg—Galesburg Airport.
Jacksonville—Jacksonville Airport.
Macomb—Macomb Airport.
Moline—Moline Airport.
Park Ridge—American Airport.
Pekin—Pekin Airport.
Peoria—Mount Hawley Airport.
Peoria—Peoria Airport.
Pine Grove—Kane County Airport.

INDIANA

Anderson—Anderson Airport.
Angola—Tri-States Airport.
Auburn—Auburn Airport.
Elkhart—Arisman Field.
Ft. Wayne—Smith Field.
Franklin—Franklin Airport.
Gamble—Gamble Airport.
Gary—Gary Airport.
Hobart—Gamble Airport.
Indianapolis—Indianapolis Airport.
Indianapolis—Hoover Airport.
Indianapolis—Sky Harbor Airport.
Kokomo—Kokomo Airport.
Lafayette—Purdue University Airport.
Muncie—Muncie Airport (days only).
Madison—Madison Airport.
New Castle—New Castle Airport.
Paducah—Paducah Airport.
Peru—Circus City Airport.
Richmond—Richmond Airport.
South Bend—Bendix Field, St. Joseph County Airport.
Terre Haute—Paul Cox Field.
Valparaiso—Valparaiso Airport (Urschel Field).
Vincennes—O'Neal Field.
Winchester—Winchester Airport.

IOWA

Ames—Howard Airport.
Burlington—Burlington Airport.
Davenport—Cram Field.
DeWitt—Clinton County Airport.
Des Moines—Des Moines Airport.
Dubuque—Dubuque Airport.
Esterville—Esterville Airport.
Fort Dodge—Ene Airport.
Grinnell—Niederhauser Airport.
Iowa City—Iowa City Airport.
Le Mars—Western Union College Airport.
Lisbon—Cedar Valley Airways.
Mason City—Air Activities Airport.
Mason City—Mason City Airport.
Mason City—Midway Airport.
Mason City—North Iowa Flying Service.
Muscatine—Muscatine Airport.
Pella—Pella Airport.
Sioux City—Sioux City Airport.
Waterloo—Chapman Field.

KANSAS

Arkansas City—Arkansas City Airport.
Coffeyville—Coffeyville Airport.
El Dorado—El Dorado Airport.
Garden City—Garden City Airport.
Hays—Hays Airport.
Lawrence—Lawrence Airport.
Meade—Meade Municipal Airport.
Pratt—Pratt Airport.
Salina—Salina Airport.
Topeka—Topeka Airport.
Wichita—Cessna Aircraft Field.
Winfield—Winfield Airport.

KENTUCKY

Bowling Green—Bowling Green Airport.
Danville—Danville Airport (Goodall Field).
Lexington—Lexington Airport.
Louisville—Bowman Field.
Middlesborough—Middlesborough Airport.
Paducah—Paducah Airport.
Paris—Paris Airport.

LOUISIANA

Alexandria—Hudson Airport.
Baton Rouge—Baton Rouge Airport.
Lafayette—Lafayette Airport.
Monroe—Selman Field.
Natchitoches—Natchitoches Airport.
New Orleans—New Orleans Airport.
New Orleans—Wedell Williams Airport.
Shreveport—Joy Airport.
Shreveport—Shreveport Airport.
Shreveport—Stovall Field.

DESIGNATED LANDING AREAS (continued)

MAINE

Auburn—Androscoggin (Auburn-Lewiston Airport).
 Auburn—Mabeaux Airport.
 Augusta—State Airport.
 Old Town—Old Town Airport.
 Portland—Portland Airport.
 Sanford—Lela H. Goodwill Field.
 Waterville—Waterville Airport.

MARYLAND

Annapolis—Annapolis Airport.
 Baltimore—Baltimore Airport.
 Baltimore—Rutherford-Baltimore Airport.
 Baltimore—Curtiss Wright Airport.
 Baltimore—Logan Field.
 Clinton—Hyde Field.
 Cumberland—Cumberland Airport.
 Easton—Tred Avon Airport.
 Glen Burnie—Glen Burnie Airport.
 Greenbelt—Schrom Airport.
 Hyattsville—Queens Chapel Airport.
 Rockville—Congressional Airport.
 Salisbury—Salisbury Airport.
 Worton Creek—Andelot Airport.

MASSACHUSETTS

Athol—O ange and Athol Airport.
 Auburn—Auburn Airport.
 Beverly—Beverly Airport.
 Boston—The Commonwealth Airport.
 Burlington—Middlesex Airport.
 Framingham—Framingham Airport.
 Hanover—Hanover Airport.
 Hatchville (Falmouth)—Falmouth Airport.
 Lawrence—Lawrence Airport.
 Lowell—Lowell Airport.
 Mendon—Mendon Airport.
 North Grafton—Grafton Airport.
 Norwood-Canton—Boston Metropolitan Airport.
 Palmer—Metropolitan Airport.
 Revere—Muller Airport.
 Seekonk—Providence Airport.
 Springfield—Springfield Airport.
 Taunton—King Field.
 Westboro—Turnpike Airport.
 Westfield—Barnes Airport.

MICHIGAN

Adrian—Adrian Airport.
 Ann Arbor—Ann Arbor Airport.
 Bay City—James Clements Airport.
 Detroit (Dearborn)—Burns Airport.
 Detroit (Dearborn)—Ford Airport.
 Detroit—Detroit City Airport.
 Detroit (Fraser)—Thomas B. Joy Airport.
 Detroit (Roseville)—Hartung Airport.
 Detroit—Wayne County Airport.
 Eaton Rapids—Miller Airport.
 Farmington—Krisport Airport.
 Flint—Bishop Airport.
 Howell—Howell Airport.
 Lansing—Capital City Airport.
 Mt. Pleasant—Mt. Pleasant Airport.
 Newport—Munro Airport.
 Niles—Niles Airport.
 Owosso—Shiawassee County Airport.
 Plymouth—Metetal Airport.
 Pontiac—Alien Airport.
 Pontiac—Pontiac Airport.
 Port Huron—Baker Field.
 Port Huron—Port Huron Airport.
 Roseville—Hartung Airport.
 Saginaw—Saginaw City Airport.
 Saginaw—Barry Field.
 Tecumseh—Tecumseh Airport.
 Wayne—National Airport.
 Wayne—Stinson Aircraft Field.
 Ypsilanti—McEnnan Airport.
 Ypsilanti—Ypsilanti Airport.

MINNESOTA

Austin—Decker Airport.
 Duluth—Williamson-Johnson Airport.
 Hibbing—Hibbing Airport.
 Mankato—Mankato Airport.
 Marshall—Marshall Airport.
 Minneapolis—Cedar Airport.
 Minneapolis—Minneapolis Airport (Wold-Chamberlain Field).
 Robbinsdale—Robbinsdale Airport.
 Rochester—Rochester Airport.
 Saint Cloud—Whitney Memorial (Saint Cloud) Airport.
 St. Paul—St. Paul Airport (Holman Field).

South St. Paul—South St. Paul Airport.
 White Bear Lake—Northport Airport.
 Worthington—Worthington Airport.

MISSISSIPPI

Clarksdale—Clarksdale Airport.
 Gibsonville—McLean Bros. Airport.
 Greenwood—Greenwood Airport.
 Gulfport—Gulfport Airport.
 Hattiesburg (Camp Shelby)—Hattiesburg Airport.
 Jackson—Jackson Air Base (Jackson Airport).
 Laurel—Laurel Airport.
 McComb—McComb Airport.
 McLaurin—McLaurin Commercial Airport.
 Oxford—Oxford Airport.
 Pascagoula—Pascagoula Airport.
 Vicksburg—Vicksburg Airport.

MISSOURI

Cape Girardeau—Cape Girardeau Commercial Airport.
 Columbia—Columbia Airport.
 Joplin—Joplin Airport.
 Kansas City—Kansas City Airport.
 Kennett—Sexton Airport.
 Kirksville—Site 12, Kansas City-Chicago Airway.
 Kirkwood—Sylvan Beach Airport.
 Kirkwood—Weiss Airport.
 Lexington—Lexington-Wentworth Airport.
 Mexico—Green Field.
 Nevada—Streets Port Airport.
 Robertson—Kratz Field.
 Rolla—Site 60, Amarillo-St. Louis Airway.
 St. Joseph—Rosecrans Field.
 Sikston—Harvey Parks Airport.
 Springfield—Springfield Airport.

MONTANA

Belgrade—Belgrade CAA Int. Field.
 Billings—Billings Airport.
 Great Falls—Great Falls Airport.
 Helena—Helena Airport.
 Kalispell—Kalispell Airport.
 Miles City—Miles City Airport.
 Plentywood—Plentywood Airport.

NEBRASKA

Chadron—Chadron Airport.
 Crete—Crete Airport.
 Fremont—Fremont Airport.
 Grand Island—Grand Island Airport (days only).
 Hastings—Hastings Airport.
 Lincoln—Linbergh Field.
 Lincoln—Union Airport.
 Lincoln—White and Jensen Airport.
 Norfolk—Norfolk Airport.
 North Platte—Lee Bird Field.
 Omaha—Omaha Airport.
 Scottsbluff—Scottsbluff Airport.
 Wayne—Wayne Airport.

NEVADA

Boulder City—Boulder City Airport.
 Las Vegas—Sky Haven Airport.
 Lovelock—Lovelock Airport.

NEW HAMPSHIRE

Concord—Concord Airport.
 Keene—Keene Airport.
 Nashua—Nashua Airport.
 Portsmouth—Portsmouth Airport.

NEW JERSEY

Almonesson—Almonesson Airport.
 Asbury Park—Asbury Park Airport.
 Atlantic City—Atlantic City Airport.
 Basking Ridge—Basking Ridge Airport.
 Bridgeport—Bridgeport Airport.
 Bendix—Bendix Airport.
 Bridgeport—Bucks Airport.
 Caldwell—Caldwell-Wright Airport.
 Clementon—Pine Valley Airport.
 Clinton—Clinton Airport.
 Cross Keys—Triangle Airport.
 East Hanover—New Hanover Airport.
 Lincoln Park—Lincoln Airport.
 Little Ferry—North American Seaplane Base.
 Moorestown—Moorestown Airport.
 New Brunswick—Hadley Field.
 Osbornville—Ocean County Airport.
 Palmyra—Palmyra Airport.
 Red Bank—Red Bank Airport.

Ridgefield—Park-Mellor Howard Seaplane Base.
 Ridgefield—Park Metropolitan Air College Seaplane Base.
 Rocky Hill—Princeton Airport.
 Trenton—Mercer Airport.
 Vineland—Kroellinger Airport.
 White House—Siberg-Hunderton Airport.
 Williamstown—Williamstown Airport.

NEW MEXICO

Albuquerque—West Mesa Airport.
 Carlsbad—Carlsbad Airport (days only).
 Clayton—Clayton Airport (days only).
 Hobbs—Mo-Tex Airport.
 Las Cruces—Las Cruces Airport.
 Raton—Raton Airport.
 Roswell—Roswell Airport.
 Santa Fe—Santa Fe Airport (days only).

NEW YORK

Albany—Albany Airport.
 Amsterdam—Carpet City Airport.
 Armonk—Westchester Airport.
 Auburn—Auburn Aviation Co., Inc., Airport.
 Bethpage—Grumman Field.
 Binghamton—Binghamton Airport.
 Buffalo—Buffalo Airport.
 Clarence—Country Club Airport.
 Dansville—Dansville Airport.
 East Amherst—Steffen Airport.
 East Greenbush—East Greenbush Airport.
 Edgemere—Rockaway Airport.
 Endicott—Tri-Cities Airport.
 Flushing—Flushing Airport.
 Glens Falls—Glens Falls Airport.
 Gardenville—Gardenville Airport.
 Harrison—Ward Airport.
 Hempstead—Nassau Airport.
 Henrietta—Hylan Field.
 Hicksville—Aviation Country Club of L. I., Inc.
 Hornell—Hornell Airport.
 Horseheads—Canfield Airport.
 Ithaca—Ithaca Airport.
 Jackson Heights—La Guardia Airport.
 Jamestown—Jamestown Airport.
 Lockport—Graf Airport.
 Lockport—Lee Airport.
 Mineola—Roosevelt Field.
 New Hackensack—New Hackensack Int. Field.
 New York City (Port Richmond)—Donovan Hughes Airport.
 New York—Suffolk Airport.
 New York—Westhampton Airport.
 Niagara Falls—Niagara Falls Airport.
 Olean—Olean Airport.
 Penn Yan—Penn Yan Flying Field.
 Port Washington—Port Washington Seaplane Base.
 Queens—Sunrise Airport.
 Ripley—Ripley Airport.
 Rochester—Genesee Airport.
 Rochester—Rochester Airport.
 Silver Creek—Silver Creek Airport.
 Syracuse—Syracuse Airport.
 Tonawanda—Bell Airport.
 Valhalla—Reynolds Airport.
 Walden—Walden Airport.
 Wellsville—Crownier Airport.
 Schenectady—Schenectady County Airport.
 Troy—Troy Airport.

NORTH CAROLINA

Asheville—Asheville-Henderson Airport.
 Burlington—Huffman Airport.
 Chapel Hill—Horace Williams Airport.
 Charlotte—Aero-Center Airport.
 Charlotte—Cannon Airport.
 Charlotte—Douglas Airport.
 Charlotte—Plaza Airport.
 Concord—Concord Airport.
 Erwin—Erwin Municipal Airport.
 Fayetteville—Fayetteville Airport.
 Gastonia (L'wood)—Gastonia Airport.
 Greensboro—Greensboro-High Point Airport.
 Henderson—Henderson Airport.
 Hickory—Cannon Airport.
 Lincolnton—Lincolnton Airport.
 Lumberton—Lumberton Airport.
 Newton—Newton-Conover Airport.
 Pinehurst—Southern Pines-Knollwood Airport.
 Raleigh—Raleigh Airport.
 Reidsville—Hopkins Airport.
 Rocky Mount—Rocky Mount Airport.

DESIGNATED LANDING AREAS (continued)

Salisbury—Salisbury Airport.
Sheiby—Sheiby Airport.
Spindale—Rutherford Airport.
Statesville—Statesville Airport.
Wadesboro—Wadesboro Airport.
Wilmington—Wilmington Airport.
Winston-Salem—Winston-Salem Airport.

OHIO

Athens—Athens Airport.
Blue Ash—Parkers Watson Airport.
Cincinnati—Cincinnati Airport (Lunken Airport).
Columbus—Sullivant Avenue Airport.
Columbus—Norton Field.
Dayton—Dialo Airport.
Dayton—Dayton Municipal Airport.
Dayton—South Dayton Airport.
Findlay—Findlay Airport.
Greenville—Treaty City Airport.
Hamilton—Hamilton Airport.
Middletown—Middletown Airport.
Sharonville—Cincinnati Airport, Inc.
Troy—Waco-Troy Airport.
Van Wert—Van Wert Airport.

OKLAHOMA

Alva—Strickland-Hornor Airport.
Ardmore—Ardmore Municipal Airport.
Bartlesville—Bartlesville Airport.
Bartlesville—Davis Airport.
Bartlesville—Phillips Airport.
Backwell—Blackwell Airport.
Calumet—Bombay Airport (days only).
Chickasha—Lowell Airport.
Claremore—C. A. A. Int. Field (Will Rogers Airport).
Clinton—Clinton Airport.
Clinton—Midway Airport.
Durant—Durant Municipal Airport (days only).
Guthrie—Guthrie Commercial Airport.
Holdenville—Holdenville Municipal Airport.
Hugo—Weddington Airport (days only).
Lawton—Lawton Airport.
Lawton—Swain Airport (days only).
Muskegee—Habon Field.
Oklahoma City—Country Club Airport.
Oklahoma City—Nuckols Field.
Oklahoma City—Wiley Post Airport.
Okmulgee—Okmulgee Municipal Airport (days only).
Norman—Norman Airport (days only).
Ponca City—Ponca City Airport.
Shawnee—Shawnee Airport.
Stillwater—Searcy Field.
Texhoma—Texhoma Airport (days only).
Tulsa—Harvey Young Airport (days only).
Tulsa—Tulsa Municipal Airport.
Tulsa—Tulsa Commercial Airport.
Tulsa—Duncan Halliburton Field.
Weatherford—Weatherford Airport.
Wetumka—Boren Field (days only).

OREGON

Bend—Bend Airport.
Klamath Falls—Klamath Falls Airport.
La Grand—Site 45A, Salt Lake-Pendleton Airway.
Ontario—Ontario Airport.
Pendleton—Stearns Field.
Portland—Swan Island Airport.

PENNSYLVANIA

Allentown—Allentown-Bethlehem Airport.
Altoona—Duncansville Airport.
Altoona—Stultz Field.
Andreas—East Penn. Airport.
Bellfonte—Bellfonte Airport.
Bloomsburg—Bloomsburg Airport.
Bradford—Harr. Emergy Airport.
Bridgeville—Mayer Airport.
Butler—Butler-Almeda Airport.
Butler—Pittsburgh-Butler Airport.
Chambersburg—Chambersburg Airport (Hartman Field).
Chester—Buckman Airport.
Collegeville—Perkiomen Valley Airport.
Connellsville—Connellsville Airport.
Conway—Conway Airport.
Danville—Danville Airport.
Dubois—Dubois Airport.
Easton—Easton Airport.
Easton—Rich Airport.
Erie—Erie County Airport.
Erie—Port Erie Airport.
Fogelsville—Fogelsville Airport.
Greensburg—Pittsburgh-Greensburg Airport.

Greenville—Greenville Airport.
Grove City—Grove City Airport.
Hanover—Danver Airport.
Harrisburg—Harrisburg State Airport.
Harrisburg—Penn-Harris Airport.
Harrison City—Harrison City Airport.
Hathboro—Hathboro Airport.
Indiana—Indiana Airport.
Kylertown—Ames Airport.
Lancaster—Lancaster Commercial Airport.
Lancaster—Lancaster Municipal Airport.
Latrobe—Latrobe Airport.
Leechburg—Leechburg Airport.
Lehighton—Lehighton Airport.
Lewistown—Lewistown Airport.
Lock Haven—Cub Haven Airport.
Meadville—Mt. Meadville Airport.
Milton—Milton Airport.
Montgomeryville—309 Airport.
New Kingston—New Kingston Airport.
Newcastle—Newcastle Airport.
Norristown—Pato Field.

Olli City—Spanie Memorial Field.
Olyphant—Midvalley Airport.
Paoli—Philadelphia Main Line Airport.
Parkersburg—Coatesville Airport.
Philadelphia—Boulevard Airport.
Philadelphia—Philadelphia Municipal Airport.

Philadelphia—Somerton Airport.
Philadelphia—(Willow Grove) Pitcairn Field.
Philadelphia—Wings Field.
Pine Grove—Swatara Valley Airport.
Pitcairn—Johnston Airport.
Pittsburgh—Pittsburgh-Allegheny County Airport.

Pittsburgh—Pittsburgh-Butler Airport.
Pottstown—Pottstown Airport.
Reading—Berks Airport.
Reading—Reading Airport.
Reading—Maderia Flying Field.
Roulett—Colusky Airport.
Sayre—Valley Airport.
Scranton—Scranton Airport.
Somerset—Rhoads Field.
St. Johns—Hazelton-Rieffenberg Airport.
State College—State College Air Depot, Inc. Airport.

Sunbury—Sunbury Airport.
Tarentum—Allegheny Valley Airport.
Thomasville—York Airport.
Warren—Warren Airport.
Waynesboro—Waynesboro Airport.
Waynesburgh—Waynesburgh Airport.
Wilkes-Barre—Wilkes-Barre-Wyoming Valley Airport.

Williamsport—Williamsport Airport.
Womelsdorf—Womelsdorf Airport.
Youngsville—Brokenstow Airport.
Zelienople—Barne Airport.

RHODE ISLAND

Providence (Warwick-Hillsgrove)—Theodore Francis Green Airport.

SOUTH CAROLINA

Anderson—Anderson Airport.
Charleston—Charleston Airport.
Columbia—Owens Field.
Greenville—Greenville Airport.
Greenwood—Greenwood Airport.
Lancaster—Coulburn Airport.
Laurens—Barksdale Field.
Orangeburg—Jennings Airport.
Rock Hill—Roddy Airport.
Spartanburg—Memorial Airport.
Starkville—Starkville Airport.

SOUTH DAKOTA

Sioux Falls—Sioux Falls Airport.
Spearfish—Black Hills Airport.

TENNESSEE

Bristol—Tri-City Airport.
Chattanooga—Chattanooga Airport.
Cookeville—Cookeville Airport.
Jackson—Jackson Airport.
Knoxville—Knoxville Airport.
Lebanon—Lebanon Airport.
Martin—Gill-Dove Airport.
Memphis—Memphis Airport.
Nashville—Berry Field.
Nashville—Gillespie Airport.

TEXAS

Abilene—Abilene Air Terminal.
Alpine—Starns Airport.

Amarillo—Amarillo Airport.
Amarillo—English Field.
Austin—Robert Mueller Airport.
Beaumont—Benmont Airport.
Big Spring—Big Spring Airport.
Borger—Harnagel Airport.
Brownsville—Brownsville Municipal Airport.

Brownsville—Mauldin Airport.
Dallas—Hampton Airport.
Dallas—Love Field.
Dallas—Mustang Airport.
Dallas—White Rock Airport.
Danison—Gray Airport.
Electra—Electra Airport.
El Paso—El Paso Airport.
Ft. Worth—Charbonneau Field.
Ft. Worth—Forwest Airport.
Ft. Worth—Meacham Field.
Ft. Worth—Singleton Field.
Garland—Hudson Airport.

Grand Prairie—Grand Prairie Airport.
Greenville—Defense Guard Airport.
Houston—Houston Airport.
Jacksonville—Jacksonville Airport.
Kilgore—Elder's Field.
Lubbock—Lubbock Airport.
Lufkin—Lufkin Airport.

McAllen—McAllen Airport (days only).
McCamay—McCamay Airport.
Marshall—Marshall Airport.
Mexia—Mexia Airport.

Mission—J. H. Shary Airport (days only).
Monobans—Agy Field (days only).
Odessa—Ector County Airport.
Pampa—Pampa Airport.
Paris—Paris Airport.

Plainview—Plainview Flying Club (days only).
Ranger—Ranger Airport (days only).
San Angelo—San Angelo Airport.
San Marcos—Thompson Field (days only).
San Antonio—Stinson Field.
Sherman—Sherman Airport.

Stephenville—Stephenville Airport.
Sweetwater—Sweetwater Airport.
Texhoma—Texhoma Airport (days only).
Tyler—Tyler Airport.
Vernon—Victory Field (days only).
Waco—Jack V. Newland Airport.
Waco—Waco Municipal Airport.

Wichita Falls—Wichita Falls Airport.
Wichita Falls—Wichita Falls Commercial Airport.

UTAH

Fillmore—Fillmore Airport.
Price—Carbon County Airport No. 2.
Salt Lake City—Utah Central Airport.

VERMONT

Bristol—Bristol Airport.
Burlington—Burlington Airport.
Fair Haven—Fair Haven Airport.
Montpelier—Barre-Montpelier Airport.
St. Johnsbury—St. Johnsbury Airport.
Springfield—Hartness Airport.
White River Junction—Twin State Airport.

VIRGINIA

Alexandria—Beacon Field.
Blacksburg—V. P. I. Airport.
Bristol—Bristol Airport.
Charlottesville—University of Virginia Airport.

Danville—Danville Airport.
Harrisonburg—Harrison Field.
Hermitage—Hermitage Airport.
Hopewell—Hopewell Airport.
Lawrenceville—Site 49-B Jacksonville

Richmond Airway.
Martinsville—Lester Airport.
Martinsville—Martinsville Airport.
Montvale—Bufords Airport.
Richmond—Central Airport.
Richmond—Richard E. Byrd Field.
Richmond—Westview Airport.
Roanoke—Woodrum Field.

Shadwell—University of Virginia Airport.
Staunton—Staunton Airport.
Waynesboro—Valley Airport.
Winchester—Winchester Airport.

WASHINGTON

Ellensburg—Site 8-Seattle-Helena Airway.
Clarkstown—Lewiston-Clarkstown Airport.
North Dallas—North Dallas Municipal Airport.

(See LANDING AREAS, page 99)

Safety, Efficiency Boosted by Uniform Radio Procedures

Following is the text of a recent safety bulletin issued by the Civil Aeronautics Board:

Rules of Good Practice for Radio Procedures and Phraseologies

Now, more than ever, it is important that all pilots using two-way radio equipment conform to recommended procedure and phraseology, in the interest of safety and efficiency.

Civil Aeronautics Manual 60, Part 2, AIRPORT TRAFFIC CONTROL outlines briefly the procedures and standard phraseologies which should be employed, and copies may be obtained from the Administrator upon request. These recommended practices are applicable whether pilots are communicating with Airport Traffic Control Towers or with C. A. A. Communications Stations.

It is *safest* to adhere strictly to recommended practice because there is far less possibility of being misunderstood.

It is more *efficient* because of greater brevity and more easily recognized words. Greater brevity and less necessity for repeating messages makes it possible to handle communications more promptly and reduce congestion for the benefit of all concerned.

If an aircraft is equipped with two-way radio it is the pilots' duty to adhere to correct procedures. If you do not know what these procedures are, write for the manual mentioned above, and become familiar with them.

As an example: If you should happen to be flying Waco airplane NC-15670 over Blue Island enroute to the Chicago Airport at an altitude of 2,000 feet and desire to initiate a call, it should be done as follows:

"CHICAGO TOWER FROM WACO ONE, FIVE, SIX, SEVEN, ZERO, GO AHEAD."

After you have received acknowledgement, you should again identify yourself and give your position, etc., such as:

"CHICAGO TOWER FROM WACO ONE, FIVE, SIX, SEVEN, ZERO, BLUE ISLAND, TWO THOUSAND LANDING AT CHICAGO, GO AHEAD."

After receiving information, a proper acknowledgement should be made as follows:

"ROGER—WACO ONE, FIVE, SIX, SEVEN, ZERO" (Note: The word "ROGER" has been adopted by the Army, Navy, and C. A. A. due to its excellent carrying qualities. It means message has been received OK.)

After receiving instructions or a clearance, a proper acknowledgement should be made as follows:

"WILCO—WACO ONE, FIVE, SIX, SEVEN, ZERO" (Note: The word "WILCO" means that instructions or clearance are understood and pilot "will comply.")

Messages also may be terminated by one of the following:



"GO AHEAD," which requires a reply, or "REPEAT" when the message has not been received or understood, or "WAIT," which indicates a return call will be made as soon as practicable.

Enunciate clearly and uniformly without hesitation. Hold the microphone at the same distance from your mouth during transmission. Observe and adopt the speech rate of ground operators whose messages are the most easily understood.

The above suggestions are, of course, necessarily brief but the purpose of this bulletin will have been accomplished if all pilots using radio will attempt to conduct radio communications in conformance with approved practices by transmitting messages briefly, clearly and uniformly.

INDIVIDUAL ACCIDENT REPORTS

Low Acrobatics Over Train Costs 3 Lives

Three fatalities resulted from an accident which occurred on November 14, 1941, near Charlotte, Mich. Pilot Gordon Dawson Thurston held a commercial pilot certificate with 1 and 28 Land ratings and had flown a total of about 346 hours. The two passengers were William G. McCoy and Robert Choate. The aircraft, a model J-5A Piper, was extensively damaged.

The pilot, accompanied by the two passengers, took off from the Battle Creek Airport, Battle Creek, Mich., about 2:12 p. m. for a local nonrevenue flight. About 20 minutes later the aircraft was observed flying at an extremely low altitude above an eastbound Grand Trunk and Western train which was about 20 miles north of Battle Creek. The airplane was about 30 feet above the train and was being turned alternately from left to right. After passing over the full length of the train the pilot made a left turn and approached the train at right angles, diving to an altitude just a few feet above the train when he passed. As he was pulling out of the dive in a sharp right turn, the right wing of the aircraft struck a high tension line about 50 feet above the ground. A short section of the right wing tip was severed by the impact and the aircraft cartwheeled into the ground at a steep angle.

Subsequent investigation did not reveal any failure of the aircraft structure, its control system, or its engine. The fuel tank had been filled before the flight. The weather was good and was not pertinent to the accident. None of

the three occupants was equipped with parachutes. The pilot and both passengers were employees of the Grand Trunk and Western Railroad.

Probable Cause.—Failure to avoid an obstruction during acrobatic maneuvers at low altitude.

Contributing Factor.—Recklessness of the pilot.

Simulated Coyote Hunt Leads to Landing Crash

Pilot Lee Roy Allen was seriously injured, and his passenger, Theodore Knox, received minor injuries in an accident which occurred on October 27, 1941, near Ray, N. Dak. Allen held a student pilot certificate and had accumulated approximately 56 solo flying hours. The aircraft, a model J-5A Piper, received major damage.

On the morning of October 27, 1941, the pilot and the passenger left the Williston, N. Dak., Airport for a local flight. The purpose of this flight was to determine the feasibility of using the subject aircraft for shooting coyotes from the air. The pilot flew over some nearby hills at a low altitude in a simulated coyote hunt. He then proceeded over the farm house of the passenger as a signal to the passenger's wife to drive out and pick up her husband. Following this the flight proceeded to a large stubble field located a short distance away, and the pilot started an approach for a landing. During the approach the aircraft stalled at an altitude of about 40 feet and struck the ground on its nose and left wing.

Subsequent investigation and inspection of the wreckage did not disclose any indication of failure of the aircraft structure, control system, or engine. The weather was good and had no bearing upon the accident.

The evidence indicates that Pilot Allen had had an informal and disconnected type of flying instruction and that he had never received any check time in the subject aircraft, which he had very recently purchased.

Probable Cause.—Poor technique during a landing approach.

Contributing Factor.—Inexperience of the pilot.

Propeller Testers

The propeller division of an airplane manufacturing firm has four machines which have been run almost continuously for the past 9 months at the rate of 10,000 revolutions per minute for testing propeller blades. One of the machines has run up a total of 322,500,000 revolutions.

New Order Applies Top Rating for Aircraft Products

Action has been taken to formalize the verbal announcement made by War Production Board Chief Donald M. Nelson giving an A-1-a preference rating to material entering into the production of direct military aircraft products.

Preference Rating Order No. P-109 was issued to replace 12 orders that previously applied to the aircraft industry. Products covered in the P-109 order include aircraft, aircraft engines and propellers, with delivery schedules approved by the Joint Aircraft Committee. Also covered are components of aircraft, including airframes, armament, accessories, instruments, equipment, etc., and spare parts.

Under the terms of the order, the producer can only apply the rating if the material to be delivered cannot be secured when required without such a rating, and if the material either will be physically incorporated into the aircraft products or is otherwise necessary for the production of aircraft products. The rating may not be applied to obtain material in greater quantities or on earlier dates than required to enable the producer to meet delivery schedules approved by the Joint Aircraft Committee or by the Aircraft Branch of the War Production Board, the order stated.

Special Provision

Provision is made whereby a supplier who has received endorsed purchase orders for material from two or more purchasers with the same preference rating may, under certain circumstances, apply the rating to a single purchase order.

The producer operating under P-109 is permitted to apply the rating to unfilled portions of outstanding purchase orders if such action is necessary to obtain required delivery dates.

While the producer is given broad authority to issue ratings without the authentication by Government officers, he will be held strictly accountable for all such actions by WPB officials.

Replaced Orders

The preference rating orders that are replaced by P-109 follow:

P-3—Material for the production of Airframes.

P-4—Material for the production of Airplane Engines and Propellers.

P-9-a—Airframes for Heavy Bombers.

P-9-b—Aircraft Engines for Heavy Bombers.

P-9-c—Aircraft Propellers for Heavy Bombers.

P-9-d—Gun Turrets for Heavy Bombers.

P-9-e—Gun Sights, Bomb Sights, and Gunfire Controls for Heavy Bombers.



P-9-f—Turbo Superchargers for Heavy Bombers.

P-9-g—Material for production of Engines for Heavy Bombers and Pursuit Ships.

P-13—Airframes.

P-15—Material entering production of Electrical Relays and Solenoid assemblies.

P-52—Aircraft accessories.

New Type Approvals

(Approval numbers and dates of assignment in parentheses)

Type Certificates

Propellers

Sensenich, 72AB, wood, 6 ft. 0 in. diameter, 4 ft. 0 in. to 3 ft. 4 in. pitch, 90 hp., 2,500 rpm. (Type Certificate No. 782, 2-24-42.)

New Models Added to Old Type Approvals

(Approval numbers and dates of approval of new models in parentheses)

Aircraft

Douglas, Army C-53B, 28-32 place closed land monoplane. Engines, 2 Pratt & Whitney Twin Wasps SIC3G. (Type Certificate No. 669, 1-2-42.)

Douglas, DC3A-S4C4G, 28 place closed land monoplane. Engines, 2 Pratt & Whitney Twin Wasps S4C4G geared 16:9 with one $\frac{3}{4}$ N damper. (Type Certificate No. 669, 2-18-42.)

Douglas, DSTA-S4C4G, 28 place closed land monoplane. Engines, 2 Pratt & Whitney Twin Wasps S4C4G geared 16:9 with one $\frac{3}{4}$ N damper. (Type Certificate No. 669, 2-18-42.)

Engines

Aircooled Motors, Franklin 4AC-199B2 and B3, 4 cyl. horizontal opposed air cooled, 65 hp. at 1,950 r. p. m. at sea level pressure altitude. The B3 model differs from the B2 model in incorporating provisions for electric starter and generator. (Type Certificate No. 226, 2-16-42.)

Aircooled, Lycoming R-680E3B, 9 cyl. radial air cooled: Rating: Maximum, except take-off, 285 h. p., 2,200 r. p. m. at sea level pressure altitude. Take-off (one minute) 300 h. p., 2,300 r. p. m. Incorporates provisions for standard aircraft type generator, starter, vacuum and fuel pumps. (Type Certificate No. 202, 2-28-42.)

Propellers

Hamilton Standard, 23F propeller with 6375A-O or 6376A-O blades, steel hub and aluminum alloy blades, 17 ft. 0 in. to 13 ft. 6 in. diameter, hydromatic controllable (feathering) pitch, 1,800 h. p., 993 r. p. m. (Type Certificate No. 767, 2-18-42.)

Hamilton Standard, 23E propeller with 6277A-O blades, 6278A-O blades, 6477A-O blades or 6478-O blades, steel hub and aluminum alloy blades, 11 ft. 7 in. to 9 ft. 7 in. diameter, hydromatic controllable (feathering) pitch, 1,050 h. p., 1,434 r. p. m. (Type Certificate No. 603, 2-28-42.)

Expansion Under Way To Supply Aluminum For 125,000 Planes

The War Production Board has announced plans to expand the nation's aluminum and magnesium production facilities to assure the production of 60,000 planes this year and 125,000 next.

When the program is completed a total supply of 2,500,000,000 pounds of aluminum a year will be available, according to present estimates. Aluminum facilities in the United States now in operation plus those under way and due to start production soon call for reaching a top rate of 1,450,000,000 pounds of annual capacity. The Materials Division of W. P. B. states that this will be increased to 2,100,000,000 pounds a year, which will be supplemented by imports from Canada.

Magnesium capacity, now scheduled to reach 400 million pounds a year through plants either in operation or under construction, will be increased to 725 million pounds annually. New scientific discoveries and better sources for raw materials have aided materially in pushing forward the magnesium program. The contemplated production of 725 million pounds of magnesium a year is believed to exceed anything the Axis powers can hope to produce, and it will provide all the magnesium needed for the production of aluminum alloy for the entire aircraft program and a tremendous quantity of incendiary bombs, according to the Board's statement.

Likewise, when the aluminum output reaches its peak it will provide enough aluminum to meet President Roosevelt's program of 125,000 airplanes a year together with all necessary spare parts and have some leeway in materials.

Another problem is that of fabricating. In general, the cost of providing fabricating facilities for a given amount of aluminum is about twice that of facilities for production from mining the ore through to the finished ingot. The time lag for constructing fabricating machinery is equally important.

Fabrication of high strength aluminum alloy requires heavy and costly machinery. As an example, crankcases for the new big aircraft engines must be forged with 35,000-pound hammers, in contrast to the general use of 16,000-pound hammers in the automobile industry.

The total output now under way, the Board's statement concludes, will be far beyond the reach of anything the Axis powers together with all the occupied countries can even contemplate.

CIVIL AERONAUTICS BOARD

OFFICIAL ACTIONS

Abstracts of Opinions, Orders, and Regulations

FOR THE PERIOD MARCH 1-15, 1942

ORDERS

ORDER No. 1577 *February 27, 1942*

Consolidated for the purpose of hearing the petitions of various air carriers for orders fixing and determining the fair and reasonable rates of compensation for the transportation of mail.

ORDER No. 1578 *March 2, 1942*

Approved an agreement between various airlines (Contract C. A. B. No. 183) relating to rates to be charged the United States for charter service.

ORDER No. 1579 *March 2, 1942*

Approved an agreement between various airlines (Contract C. A. B. No. 195) relating to rates to be charged others than the United States for charter flights.

ORDER No. 1580 *March 2, 1942*

Approved the proposed consolidation of Marine Airways and Alaska Air Transport, Inc. (Opinion and order—Docket No. 358.)

ORDER No. 1581 *March 2, 1942*

Instituted a proceeding to determine whether the public convenience and necessity require service to Long Beach, Calif., on Route No. 2 or 4, made American Airlines, Inc., and Transcontinental & Western Air, Inc., parties to the proceeding and consolidated it with the application of United Air Lines Transport Corp. for amendment of its certificate for Route No. 11.

ORDER No. 1582 *March 4, 1942*

Suspended for 30 days aircraft and aircraft engine mechanic certificate No. 7784, held by Fred W. Mohr, for repairing, inspecting, and approving an aircraft as airworthy when it was actually unairworthy in various particulars.

ORDER No. 1583 *March 4, 1942*

Suspended for 6 months private pilot certificate No. 108502, held by Merrill Meeker, for piloting an aircraft over a congested area at an altitude of less than 1,000 feet and other violations of the Civil Air Regulations.

ORDER No. 1584 *March 4, 1942*

Suspended for 60 days private pilot certificate No. 19211-40, held by Maryan J. Winicki, for piloting an aircraft carrying a passenger and performing acro-

batics when neither the pilot nor passenger were equipped with parachutes, and other violations of the Civil Air Regulations.

ORDER No. 1585 *March 4, 1942*

Suspended for 15 days student pilot certificate No. S-296554, held by J. R. Perry, for piloting an aircraft outside an area within the operating base of his instructor when he had not been certified as competent for solo cross-country flights in violation of the Civil Air Regulations.

ORDER No. 1586 *March 6, 1942*

Suspended for 30 days commercial pilot certificate No. 35846, held by Benjamin Ruga, Brooklyn, N. Y., and suspended his instructor rating until such time as he shall successfully complete the written and flight tests.

ORDER No. 1587 *March 6, 1942*

Modified Order Serial No. 1073 so as to permit Nathan G. Tate to apply for any type of pilot certificate.

ORDER No. 1588 *March 6, 1942*

Adopted a supplemental order adjusting the rate of compensation for transportation of mail by All American Aviation, Inc., over Route No. 49. (Opinion and order—Docket No. 518.)

ORDER No. 1589 *March 7, 1942*

Instituted an investigation and assigned a hearing in the matter of the complaint of Jack Adler against Chicago & Southern Air Lines, Inc.

ORDER No. 1590 *March 7, 1942*

Reopened proceeding in the matter of compensation for the transportation of mail by Delta Air Corporation (Order Serial No. 1508) over Route Nos. 24 and 54 and assigned it for oral argument.

ORDER No. 1591 *March 9, 1942*

Dismissed order Serial No. 1369 in the matter of an Airport Notice of Northwest Airlines, Inc.

ORDER No. 1592 *March 9, 1942*

Ordered an investigation with respect to the activities of Universal Air Freight Corporation and assigned proceeding for public hearing.

ORDER No. 1593 *March 9, 1942*

Granted Transcontinental & Western Air, Inc., permission to intervene in the

matter of the application of West Coast Airlines, Inc., for a certificate of public convenience and necessity authorizing scheduled air transportation of mail and property by the pick-up method.

ORDER No. 1594 *March 9, 1942*

Directed United Air Lines Transport Corporation to show cause why the Board should not make final the findings and conclusions set forth in the Statement of Tentative Findings and Conclusions, dated March 9, 1942, and upon the basis thereof, fix, determine, and publish the rates set forth in said Statement as the fair and reasonable rates of compensation for the transportation of mail on Route No. 57. (Opinion and order—Docket No. 603.)

ORDER No. 1595 *March 9, 1942*

Amended order of the Board (Serial No. 1575) so as to begin period of suspension from December 8, 1941.

ORDER No. 1596 *March 11, 1942*

Suspended for 60 days private pilot certificate No. 94074 held by Lucile Richards for piloting an aircraft on a civil airway with dual controls fully functioning and with both control seats occupied by persons not properly certificated for such operation and other violations of the Civil Air Regulations.

ORDER No. 1597 *March 11, 1942*

Revoked private pilot certificate No. 90476 held by Laurence Eaton, Grand Island, Nebr., for piloting an aircraft on a civil airway with the dual controls fully functioning while both control seats were occupied by persons not properly certificated for such operation and other violations of the Civil Air Regulations.

ORDER No. 1598 *March 12, 1942*

Adopted an order fixing and determining the fair and reasonable rates of compensation for the transportation of mail over routes operated by American Airlines, Inc. (Opinion and order—Docket No. 334, 204.)

ORDER No. 1599 *March 11, 1942*

Denied request of Frederic Karoly to argue his objections to the Examiner's ruling on the Administrator's motion to amend the complaint on March 6, 1942.

ORDER No. 1600 *March 13, 1942*

Dismissed petition of Carl Doby for reconsideration of the Board's order, Serial No. 1439.

ORDER No. 1601 *March 13, 1942*

Suspended for 30 days student pilot certificate No. S-24592, held by Ronald A. Smith, for piloting an aircraft carrying a passenger other than a certified instructor and other violations of the Civil Air Regulations.

ORDER No. 1602 *March 13, 1942*

Granted petition of Elizabeth City to be designated as an intermediate point on route No. 51 of Pennsylvania-Central Airlines Corporation. (Opinion and order—Docket No. 619.)

ORDER No. 1603 *March 13, 1942*

Suspended for 90 days private pilot certificate No. 24209-40 held by Gerald R. Archer for piloting an aircraft at an altitude of less than 500 feet over open country, and other violations of the Civil Air Regulations. (Opinion and order.)

REGULATIONS

(A number of the following Amendments are dated before March 1, 1942. These were not received in time for inclusion in previous issues of the JOURNAL.)

AMENDMENT 40-9 *Feb. 10, 1942*

The Board has issued the following corrections in this amendment, which was published in full in the March 15 issue of the JOURNAL: Sec. 40.21 should read, "Route requirements: Visual-contact night operation;" and Sec. 40.23 should read, "Aircraft requirements: Visual-contact day operation."

AMENDMENT 01-1 *March 6, 1942*

Effective March 6, 1942:
Add a new section 01.33 immediately following section 01.32 to read as follows:

"01.33 Aircraft Accidents. An accident involving aircraft is an occurrence involving either or both of the following conditions: (a) an accident which results in serious injury or death to an occupant of aircraft, or to any other person by direct contact with the aircraft; (b) an accident which results in damage to an aircraft sufficiently serious to render it unairworthy. Defects or damage first discovered during routine maintenance, inspection or overhaul shall not be considered as constituting damage under this definition regardless of its nature or extent."

AMENDMENT 04-3 *February 6, 1942*

Effective July 1, 1942:
Insert a new section 04.01 immediately following section 04.00 to read as follows:
"04.01 Airplane categories. At the election of the applicant, an airplane may be certified under the requirements for a particular category according to the intended use of the airplane. Sections of this Part which affect only one particular category are designated by a suffix added to the appropriate section numbers, as follows:

Normal Category _____ Suffix "N"
Transport Category _____ Suffix "T"
Acrobatic Category _____ Suffix "A"

All sections not designated by a suffix are applicable to all categories, except as otherwise specified."

AMENDMENT 04-4 *February 6, 1942*

Effective July 1, 1942:
Insert a new section 04.434-T immediately following section 04.434 to read as follows:
"04.434-T Flap controls. For transport category airplanes, the flap control shall provide means for bringing the flaps from any position within the operating range to any one of three positions, designated herein-

after as landing, approach, and take-off positions, or to the fully retracted position, by placing the primary flap control in a single setting marked as corresponding to each such flap position, the flaps thereupon moving directly to the desired position without requiring further attention. If any extension of the flaps beyond the landing position is possible, the flap control shall be clearly marked to identify such range of extension.

"The landing position, approach position, and take-off position, or any of them, may be made variable with altitude or weight by means of a secondary flap control provided for that purpose. Such a secondary control, if provided, shall operate independently of the primary control and in such manner that when it has been adjusted (for the effect of weight or altitude), the necessary flap position can thereafter be obtained by placing the primary flap control in the desired position. The secondary control shall be so designed and marked as to be readily operable by the crew.

"The rate of flap retraction shall be such as to permit compliance with § 04.7540-T."

AMENDMENT 04-5 *February 6, 1942*

Effective July 1, 1942:

Insert a new section 04.439-T immediately following section 04.438 to read as follows:

"04.439-T Trim controls. For transport category airplanes, the trimming devices shall be capable of continued normal operation in spite of the failure of any one connecting or transmitting element in the primary control system. Trim controls shall operate in the plane and with the sense of the motion of the airplane which their operation is intended to produce."

AMENDMENT 04-6 *February 6, 1942*

Effective July 1, 1942:

Insert a new section 04.445 immediately following section 04.444, to read as follows:

"04.445 Brakes. Transport category airplanes shall be equipped with brakes certified in accordance with the provisions of Part 15 for the maximum certificated landing weight at sea level and the power-off stalling speed, V_{se} , as defined in § 04.7511-T. The brake system for such airplanes shall be so designed and constructed that in the event of a single failure in any connecting or transmitting element in the brake system, or the loss of any single source of hydraulic or other brake operating energy supply, it shall be possible, as shown by suitable test or other data, to bring the airplane to rest under the conditions specified in § 04.7533-T with a mean negative acceleration during the landing roll of at least 50 percent of that obtained in determining the landing distance under that section."

AMENDMENT 04-7 *February 6, 1942*

Effective July 1, 1942:

Insert a new section 04.707-T immediately following section 04.707 to read as follows:
"04.707 Flutter and vibration. All parts of transport category airplanes shall be free from flutter or excessive vibration under all speed and power conditions appropriate to the operation of the airplane during take-off, climb, level flight, and landing, and during glide at speeds up to the maximum indicated airspeed attained during official flight tests (see § 04.722). There shall be no appreciable buffeting for any flap position at any speed in excess of 10 miles per hour above stalling speed for such position nor shall buffeting at lower speeds be so violent as to interfere with the pilot's control of the airplane or cause discomfort to its occupants."

AMENDMENT 04-8 *February 6, 1942*

Effective July 1, 1942:

Strikes sections 04.75 through 04.761, inclusive, and substitutes new provisions dealing mainly with performance requirements for transport category airplanes. (Space does not permit the printing in full of this amendment.)

AMENDMENT 04-9 *February 21, 1942*

Effective July 1, 1942:

"04.531 (e). A set of certified air carrier airplane position lights. The forward lights may be air carrier forward position lights or a combination of standard forward

position lights and a set of auxiliary forward position lights. (See Part 15 for light requirements and section 04.5827 for installation requirements.)"

AMENDMENT 04-10 *February 21, 1942*

Effective July 1, 1942:

"04.5827. Position lights shall be installed so that, with the airplane in normal flying position, the forward red position light is displayed on the left side and the forward green position light on the right side, each showing unbroken light between two vertical planes whose dihedral angle is 110 degrees when measured to the left and right, respectively, of the airplane from dead ahead. Such forward position lights shall be spaced laterally as far apart as practicable. One rear position light shall be installed on the airplane at the rear and as far aft as possible and shall show a light visible ait through a dihedral angle of 140 degrees bisected by a vertical plane through the longitudinal axis of the airplane. Such light shall emit (a) in the case of a non-air carrier airplane, a continuous white light and (b) in the case of an air carrier airplane, alternate red and white flashes as specified in § 15.2015. In lieu of such single rear position light, an air carrier airplane may carry two rear position lights, one red and one white, spaced as closely as possible to each other with one unit above the other and in combination emitting the red and white flashes specified in § 15.2015."

AMENDMENT 04-11 *February 27, 1942*

Effective Feb. 27, 1942:

Amend the first full paragraph of section 04.71 to read as follows:

"04.71 Modified performance requirements for air carrier airplanes not certified in the transport category. The weight of any multi-engine air carrier aircraft manufactured pursuant to a type certificate issued prior to January 1, 1941, and which aircraft is being operated in accordance with the requirements of Part 61, may be increased beyond the values corresponding to the landing speed specified in § 04.706 and take-off requirements of § 04.701, subject to following conditions:

AMENDMENT 04-12 *March 4, 1942*

Effective July 1, 1942:

"04.70 Performance requirements. All airplanes shall comply with the performance requirements set forth in §§ 04.707 and 04.708. All airplanes except those certified in the transport category shall comply with §§ 04.700 through 04.7061, inclusive. Compliance with such performance requirements shall be shown in standard atmosphere, at all weights up to and including the standard weight (§ 04.102) and under all loading conditions within the center of gravity range certified (§ 04.742): *Provided*, That demonstration of compliance with landing-speed requirements, and with those relating to take-off time and distance, may be limited to an intermediate range of center of gravity positions if it can be shown that it is possible for the airplane to continue flight with one engine inoperative and that passengers or other load can be easily and rapidly shifted while in flight to permit the realization, at the pilot's discretion, of a center of gravity position within the range covered by this demonstration. There shall be no flight or handling characteristics which, in the opinion of the Administrator, render the airplane unairworthy."

AMENDMENT 04-13 *March 4, 1942*

Effective July 1, 1942:

Amend the table of contents of Part 04 by striking the section heading as now set forth in the table of contents opposite the number 04.01 and inserting in lieu thereof "Airplane categories," by striking 04.75 together with the section heading opposite such number and inserting in lieu thereof the following: "04.75-T Performance requirements for transport category airplanes," and by striking the number 04.76 together with the section heading now opposite such heading.

AMENDMENT 15-1 *February 21, 1942*

Effective July 1, 1942:

1. Strike the title of section 15.2014 and insert in lieu thereof the title, "Non-air carrier airplane rear position lights."

2. Add a new section after section 15.2014 to read as follows:

"**15.2015 Air carrier airplane rear position lights.** Air carrier airplane rear position lights shall emit an alternate aviation red and aviation white flash repeated at a frequency of 40 cycles a minute; each cycle shall have the following characteristics: 150° white—10° dark—150° red—50° dark. A tolerance of plus or minus 10 percent will be allowed in the above figures. Both white and red lights shall be fitted with 32 candlepower lamps. The red and white units of the light may be separate units spaced as closely as possible. Each color of light shall be completely visible in dihedral angle A. If separate red and white units are used, certificated white tail lights may be converted into such units as follows: (a) the candlepower of the lamps shall conform to the requirements of this section, (b) the clear cover glass for the intended red unit shall be replaced by a red cover glass of the same design. No photometric tests of such converted lights will be considered necessary when the above changes are made. If the light is of a new type, it shall emit light in all directions in dihedral angle A as specified in section 15.2014."

3. Amend section 15.202 except subparagraphs (a), (b) and (c) to read as follows:

"**Color.** All left forward position lights shall be aviation red, all right forward position lights shall be aviation green, and all rear position lights for noncarrier aircraft shall be aviation white. These colors are defined as follows":

AMENDMENT 40-6—February 6, 1942

Effective July 1, 1942:

"**40.12 Aircraft.** Applicant shall show aircraft certificated as provided in Part 04 of a model and number deemed by the Administrator to be necessary for safe operation as related to the service offered, the route traversed, and the operating and maintenance procedures and techniques proposed."

AMENDMENT 40-7—February 6, 1942

Effective July 1, 1942:

"**40.2 Passenger minimum requirements.** To be eligible for an air carrier operating certificate for the carriage of persons in interstate air transportation within the continental limits of the United States, an applicant, in addition to meeting the minimum requirements provided for in § 40.1, shall meet and comply with the following minimum requirements prescribed for the particular kind of operation proposed. Airplanes proposed for use for the carriage of passengers shall be subject to the following requirements:

(a) No airplane certificated as a basic type after June 30, 1942, shall be deemed adequate for use in scheduled air transportation unless it has been certificated in accordance with the transport category requirements of Part 04;

(b) No airplane which has been certificated as a basic type in accordance with the transport category requirements of Part 04 shall be deemed adequate for use in scheduled air transportation unless it can meet the requirements of § 61.712 over each route to be flown;

(c) On or after December 31, 1944, no individual airplane shall be deemed adequate for use in scheduled air transportation unless it has been certificated in accordance with the transport category requirements of Part 04 and can meet the requirements of § 61.712 over each route to be flown; or

(d) No airplane shall be deemed adequate for use in scheduled air transportation after December 31, 1947, unless it has been certificated in accordance with the transport category requirements of Part 04, and can meet the requirements of § 61.712 over each route to be flown."

AMENDMENT 60-59—February 21, 1942

Effective July 1, 1942:

"**60.60 (Unassigned.)**
60.61 Airplane lights. Between sunset and sunrise, all airplanes in flight shall show position lights certificated, and installed in accordance with the applicable provisions of Parts 15 and 04.

"**60.62 Airship lights.** Between sunset and sunrise, airships shall carry and display the same lights prescribed for non-air carrier airplanes, except that the side lights shall be doubled horizontally in a fore and aft position and the rear light shall be doubled vertically. Lights in a pair shall be at least 7 feet apart.

"**60.63 Balloon lights.** Between sunset and sunrise, a free balloon shall display one steady white light and one flashing red light, both lights to be visible all around the horizon at a distance of at least 2 miles under clear atmospheric conditions. The white light shall be located not less than 20 feet below the car and the red light shall be located not less than 7, nor more than 10, feet below the white light. Between sunset and sunrise, a fixed balloon, or airship, shall carry 3 lights—red, white, and red—in a vertical line, one over the other, visible at least 2 miles under clear atmospheric conditions. The top light shall not be less than 20 feet below the car, and the lights shall be not less than 7, nor more than 10, feet apart.

"**60.64 Lights on stationary aircraft.** Between sunset and sunrise, all airplanes which are on the surface of water and not under way, or which are moored or anchored in navigation lanes, shall show in all directions an anchor light in accordance with the applicable provisions of Part 04. Between sunset and sunrise, balloon and airship mooring cables shall show groups of 3 red lights at intervals of at least every 100 feet, measured from the car. The first light in the first group shall be approximately 20 feet from the lower red balloon light. The object to which the balloon is moored on the ground shall have an adequate group of lights to mark its position."

AMENDMENT 60-60—February 21, 1942

Effective July 1, 1942:

Strike the words "60.60 Angular limits" as they appear in the table of contents of Part 60 and insert in lieu thereof the following: "60.60 (Unassigned.)"

AMENDMENT 60-61—February 24, 1942

Effective February 24, 1942:

Insert after section 60.954 a new section 60.96 to read as follows:

"**60.96 Weather information.** Air carriers and their employees, except pilots while in scheduled flight within the continental limits of the United States, shall make available to the United States Weather Bureau and to the Administrator such weather information and data in their possession as the Administrator may direct, to be submitted in the form and manner prescribed by the Administrator."

AMENDMENT 61-20—February 6, 1942

Effective July 1, 1942:

Adds a new section 61.712, to be inserted immediately after section 61.7114, dealing with operating limitations upon airplanes certificated under transport category requirements. (Space does not permit the printing of this amendment in full.)

REGULATION NO. 207—March 6, 1942

Section 239.1 of the Economic Regulations—Charter Trips and Special Services by Air Carriers Holding Certificates of Public Convenience and Necessity.

(a) No air carrier holding a certificate of public convenience and necessity shall operate any charter trip or other special service, either between points named in its certificate or otherwise, unless it shall have first secured approval thereof by the Military Director of Civil Aviation or his designee, or unless authorized by such further regulations as the Board may from time to time promulgate.

(b) This regulation shall become effective on March 12, 1942.

REGULATION NO. 208—March 9, 1942

Amendment No. 1 of Section 224.1 of the Economic Regulations—Filing, Posting and Publishing of Tariffs by Air Carriers and Foreign Air Carriers.

Effective on the 20th day of March, 1942, section 224.1 of the Economic Regulations is amended by striking out paragraph (M).

Accident Report

(Continued from page 87)

groups. It should also be brought out that these commercial pilots referred to do not include airline pilots.

CAR Violations

The 1,907 accidents which occurred in the first 6 months of 1941 indicated 86 violations of the Civil Air Regulations, which represent 4.5 percent of the total accidents. This is a 32.2 percent decrease in the violations indicated in the accidents reported during the first 6 months of 1940.

Fifty-two of the 1941 violations were in fatal and serious accidents. The most frequent of these violations were: (1) Flying below minimum safe altitude; (2) Violations of the CAR regarding aerobatic flying; (3) Students carrying passengers; (4) Flying in instrument weather without instrument rating. The potential danger of these violations is very apparent and should be avoided, the report states.

Landing Areas

(continued from page 94)

Pullman—Pullman-Moscow Regional Airport.
Spokane—Calkins Air Terminal.
Spokane—Felt's Field.
Spokane—Spokane Airport.
Walla Walla—Walla Walla Airport.
Wenatchee—Fancher Field.
Yakima—Yakima County Airport.

WEST VIRGINIA

Beckley—Beckley-Mt. Hope Airport.
Charleston—Kanawha Flying School.
Charleston—Wertz Field.
Clarksburg (Bridgeport)—Harrison Co. Airport.
Elkins—Elkins Airport.
Glendale—Glendale Airport.
Holliday's Cove—Holliday's Cove Airport.
Huntington—Mayes Field (Huntington-
Ironton-Kesapeake Airport).
Morgantown—Morgantown Airport.
Moorefield—Moorefield Airport.
Parkersburg—Parkersburg Airport.
Princeton—Princeton Airport.

WISCONSIN

Appleton—Outagamie County Airport.
Beaver Dam—Beaver Dam Airport.
Calumet—Calumet-Laurium Airport.
Chippewa Falls—Chippewa Falls Airport.
Clintonville—Clintonville Airport.
Escanaba—Escanaba Airport.
Green Bay—Brown County Airport.
Janesville—Janesville City Airport.
Kenosha—Kenosha Airport.
Lake Delton—Lake Delton Airport.
Madison—Madison Airport.
Manitowoc—Manitowoc Airport.
Marquette—Marquette County Airport.
Milwaukee—General Mitchell Field (Milwaukee County Airport).
Milwaukee—Curtiss-Milwaukee Airport.
Oshkosh—Winnebago County Airport.
Racine—Horlick-Racine Airport.
Superior—Bryn Ostry Airport.
Waukesha—Waukesha County Airport.
Wausau—Alexander Airport.
West Bend—West Bend Airport.
Wisconsin Rapids—Nepco Tri-City Airport.

Magnets Used as "Spotters"

One aircraft plant uses small powerful magnets to locate small tools, steel screws, scrap metal or other materials accidentally dropped or misplaced in an airplane under construction.

Status of Parts of the Civil Air Regulations and Regulations of the Administrator of Civil Aeronautics

As of February 15, 1942

All persons affected by these Regulations, including those preparing for examinations for certificates may obtain required Parts of the Regulations from the Publications and Statistics Division, Civil Aeronautics Administration, Washington, D. C., without charge.

ONLY PARTS NEEDED SUPPLIED FREE

For example, pilots are governed in general by Parts 01, 20, 60, and 98; aircraft mechanics by Parts 01, 04, 15, 18, 24, 98, and Section 60-32; and aircraft engine mechanics by Parts 01, 04, 13, 14, 18, 24, and 98. It should be remembered that individuals are entitled to receive free of charge only those portions of the Regulations which directly govern the activity in which they are engaged and this activity must be definitely stated when request is made.

HOW TO OBTAIN PARTS, AMENDMENTS, AND MANUALS

Those persons not affected by the Regulations, but desiring all or any part of the

Regulations for other purposes, may obtain them as follows: Those Parts on which a price is listed in the tabulation below are on sale by the Superintendent of Documents, U. S. Government Printing Office (shown as G. P. O. in table), Washington, D. C., and are not available for free distribution except as stated in the first paragraph.

Eventually, all Parts will be placed on sale; meanwhile, Parts not yet on sale (carrying remark in tabulation below "order from C. A. A. only") may be obtained without charge from the C. A. A. upon demonstration of valid interest on the applicant's part.

ALL AMENDMENTS TO THE REGULATIONS, AND NOTICE OF NEW PARTS, ARE PRINTED IN THE CIVIL AERONAUTICS JOURNAL, AS RELEASED.

The tabulation below carries in the right-hand column the numbers of all effective amendments to each Part issued subsequent to its publication. Parts ordered from C. A. A. include all effective amendments,

but when Parts are purchased from G. P. O. amendments must be requested separately from C. A. A.

Civil Aeronautics Manuals supplementing certain Parts with detailed interpretations of their respective provisions are issued. They are numbered the same as the Parts they supplement, and those Parts accompanied by Manuals carry appropriate notations. All Manuals are obtained from C. A. A. only, without charge.

PARTS CANCELLED AND UNASSIGNED

Cancelled Parts 00, and 03, now incorporated in Part 01; cancelled Part 23, now incorporated in Part 51.; and cancelled Part 25, now incorporated in Part 24. Parts 90-96, inclusive, cancelled. All other Part numbers not shown are unassigned.

Bound volumes of the complete Civil Air Regulations are no longer available. Parts and amendments are punched for filing in loose-leaf binders.

Civil Air Regulations

PART NO.	TITLE	DATE	REMARKS	PRICE	EFFECTIVE AMENDMENTS
01	AIRWORTHINESS CERTIFICATES.....	11-1-41	In stock at C. A. A. and on sale at G. P. O.....	\$0.05	01-1 Spec. Reg. Ser. 200.
02	TYPE AND PRODUCTION CERTIFICATES.....	3-1-41	In stock at C. A. A. and on sale at G. P. O.....	.05	
04	AIRPLANE AIRWORTHINESS (MANUAL 04, 2-1-41).....	4-1-41	In stock at C. A. A. and on sale at G. P. O.....	.15	116, 129, 04-3 thru 04-10, 04-11, 04-12, 04-13. ³
13	AIRCRAFT ENGINE AIRWORTHINESS (MANUAL NOT ISSUED).....	8-1-41	In stock at C. A. A. and on sale at G. P. O.....	.05	
14	AIRCRAFT PROPELLER AIRWORTHINESS (MANUAL 12-1-38).....	11-15-40	In stock; order from C. A. A. only.....		
15	AIRCRAFT EQUIPMENT AIRWORTHINESS (MANUAL 15, OUT OF STOCK).....	11-15-40	In stock; order from C. A. A. only.....		15-1. ⁴
16	AIRCRAFT RADIO EQUIPMENT AIRWORTHINESS (MANUAL 2-13-41).....	2-13-41	In stock at C. A. A. and on sale at G. P. O.....	.05	
18	Maintenance, REPAIR, AND ALTERATION OF CERTIFIED AIRCRAFT AND OF AIRCRAFT ENGINES, PROPELLERS, AND INSTRUMENTS. (MANUAL 18, 6-1-41, OUT OF STOCK).....	6-1-41	In stock; order from C. A. A. only.....		
20	PILOT CERTIFICATES.....	5-1-40	In stock at C. A. A. and on sale at G. P. O.....	.05	63, 65, 67, 75, 82, 83, 87, 88, 99, 101, 107, 110, 111, 112, 115, 117, 118, 125, 126, 127, 20-22 thru 20-36. Spec. Reg. Ser. 205.
21	AIRLINE TRANSPORT PILOT RATING.....	11-15-40	In stock; order from C. A. A. only.....		87, 101, 115, 21-4, 21-5.
22	LIGHTER-THAN-AIR PILOT CERTIFICATES.....	9-15-41	In stock at C. A. A. and on sale at G. P. O.....	.10	22-1 thru 22-3.
24	MECHANIC CERTIFICATES.....	5-1-40	In stock at C. A. A. and on sale at G. P. O.....	.05	44, 61, 73, 75, 87, 100, 24-7.
26	AIR-TRAFFIC CONTROL TOWER OPERATOR CERTIFICATES.....	2-3-42	To be available soon at C. A. A. and on sale at G. P. O.....		
27	AIRCRAFT DISPATCHER CERTIFICATES.....	7-15-40	In stock at C. A. A. and on sale at G. P. O.....	.05	74, 75, 87, 27-4, 27-5.
40	AIR CARRIER OPERATING CERTIFICATION.....	11-1-40	In stock at C. A. A. and on sale at G. P. O.....	.05	85, 89, 102, 129, 133, 40-6, 40-7, 40-8 thru 40-10.
50	FLYING SCHOOL RATING (MANUAL 50, 12-40) ¹	11-1-40	In stock at C. A. A. and on sale at G. P. O.....	.05	87, 105, 50-3.
51	GROUND INSTRUCTOR RATING.....	5-1-40	In stock at C. A. A. and on sale at G. P. O.....	.05	75, 87, 128, 51-4.
52	REPAIR STATION RATING (MANUAL 52, 2-41).....	6-1-40	In stock at C. A. A. and on sale at G. P. O.....	.05	75, 84, 87.
53	MECHANIC SCHOOL RATING (MANUAL 53, 5-40).....	9-15-40	In stock at C. A. A. and on sale at G. P. O.....	.05	75, 87.
60	AIR TRAFFIC RULES (MANUAL 60; PART 1, 12-1-40; PART 2, 8-1-40; PART 3, 12-1-40).....	10-4-40	In stock at C. A. A. and on sale at G. P. O.....	.10	80, 90, 93, 102, 104, 110, 120, 121, 127, 135, 60-25 thru 60-44, 60-46 thru 60-48, 60-50 thru 60-58, 60-59, 60-60, 60-61, Spec. Reg. Ser. 177.
61	SCHEDULED AIR CARRIER RULES.....	1-1-41	In stock at C. A. A. and on sale at G. P. O.....	.05	01, 94, 97, 102, 115, 120, 122, 129, 130, 132, 134 61- 17, thru 61-19, 61-20, 61-21 thru 61-32. Spec. Reg. Ser. 182, 188, 192.
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99	MODE OF CITATION OF REGULATIONS.....	11-15-40	In stock; order from C. A. A. only.....		98-1.

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511	GENERAL AERONAUTICAL RULES FOR THE WASHINGTON NATIONAL AIRPORT.....	9-26-41	In stock; order from C. A. A. only.....	
525	NOTICE OF CONSTRUCTION OR ALTERATION OF STRUCTURES ON OR NEAR CIVIL AIRWAYS.....	11-1-41	In stock; order from C. A. A. only.....	
531	SEIZURE OF AIRCRAFT.....	12-8-41	In stock; order from C. A. A. only.....	
600	DESIGNATION OF CIVIL AIRWAYS.....	3-1-42	Not published (See Air Navig. Radio Aids).....	1.
601	DESIGNATION OF AIRWAY TRAFFIC CONTROL AREAS, ETC.	1-15-42	Not published (See Air Navig. Radio Aids).....	1 thru 6.

¹ Amendments issued as C. & I. Release No. 50, 6-3-41, and S. R. Release No. 97, 2-23-41.

² Amendment No. 1 issued as S. R. Release No. 62, 8-12-41.

³ Amendment 4-14-41 issued as S. R. Release No. 77, 11-13-41.

⁴ Effective date suspended until 3-1-42 by Order No. 1490.

⁵ Effective 7-1-42.

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